App. F. IX-4

Previous References.
IrC-262-26 (1-8, 11-13)
IrC 50-25 (1-9)

Later References.
Ire 124-46-9-18

1943.
(9 + C.)

IrC. **File No.** 9-43

Serial Nos. 1-11,
13,-16.
17,-18-21.

GENERAL AND REVENUE SECRETARIAT

Serial Nos. 20

Part B for November 1945

SUBJECT

Starting an Electrolytic Alkali plant in the State

V.177

Sd/- H. Ranjachari
9/2/46

6816

Starting an Electrolytic alkali plant in the State

Letter No. Nil dated the 4th June '28 from Mr. S.G. Sastry (Retired Dirg. Sc.) Stating that the Conditions in Mysore State are more favourable to-day for the Starting of the Electrolytic alkali plant as there is sufficient demand for Caustic Soda in the State and the out-laying districts to warrant the Starting of such a plant on a Scale not less than that of the Tata and requesting to the highest that Govt may proceed with the elaboration of the Scheme so that he may be immediately sure of Govt help and support in the matter.

Orders of the Min. D.S on the P.S.

"Dr. Secy

Have we any previous papers or proposals in this Connection Viz alkali Manufacture in the State? I have to send Govt. the reply soon."

Init M.A.S
4/6

Refer if any.

Init C.E.
4/6

Noted for perusal & orders with the previous papers on the subject.

Kind refer is invited to the G.O No D. 12915-19/Sc 262-26-8 dated 5-6-28 regarding the Scheme for the installation of a Small plant for the Manufacture of Caustic

Soda and Chlorine products. The Scheme was dropped on the ground that it was not properly considered by the Board Chemist. There he put it forward.

Mrs Mr S. S. Sastry (Rtd Engineer) has stated that the conditions in Mysore State are more favourable to-day for the starting of such a plant on a scale of not less than that at Mettur and he has requested that the information whether he may proceed with the elaboration of his scheme so that he may be reasonably sure of Govt help & support in the matter.

1) Submitted for perusal & orders

2) For perusal with ref Cs

8/6/43 (Dorsey) 9.6.43

(9/6/43 Mins, Sec)

3) Cs 9/6

4) The papers make interesting reading. 10/6

5) I shall be glad to discuss the schemes with Mr Sastry. A convenient hour to date may be fixed — between the 16th & 20th July.

11/7/43

6) Cs. 12/7

12/7

(Contd.)

OFFICE OF THE MINISTER FOR INDUSTRIES & SUPPLIES
JUN 10 1943
No. 1043

1) High capital cost.
2) Conditional on duplication of paper plant ??
3) Equipment
4) Competition (postwar) with Mysore + ICI

11) The Minister has fixed up 3-30 P.M. on 16.7.43 and told Mr Sastry also.
12) Submitted to Secy. for kind information & return of file for today's. on 16.7.43. 14.7.43. Cs 14/7

17) Brief note for approval or other orders

Sd/-
12/7

OFFICE OF THE MINISTER FOR INDUSTRIES & SUPPLIES
JUL 17 1943
No. 25/1

14) I discussed further this scheme with Mr. Sastry with particular reference to the following points:-

(1) The abnormally high capital cost of the scheme under the present conditions,

(2) How far this new enterprise with its high capital cost will be able to stand the post-war competition with earlier and therefore better established concerns like the I.C.I. (Rishra) and Mettur, which have had the benefit of the high war-time prices.

(3) The difficulty or otherwise of importing the necessary equipment,

(4) How far the scheme is necessarily conditioned on the duplication of the Paper Plant at Bhadravati?

15) Mr. Sastry has brought me the attached note dealing with these points.

16) Mr. Sastry also states that the question of the availability of the right type of salt for the Electrolytic Plant presents no difficulty now and that he has satisfied himself that the right type of raw material can be found. He adds that his scheme includes equipment for the removal of magnesium salts and other impurities from the Sodium salt.

17) Mr. Sastry says that he learns that the Government of India have arranged for the import under the Lease/Lend of three or four Electrolytic Alkali Plants for distribution in India. He does not know the exact capacity of each of these.

6816 S 42

Continuation Sheet. Sc File No. / Current No. 9 of 43 Page.

18) Mr. C.C. Desai, I.C.S., Deputy Director General of Supply, who is in touch with ~~the~~ Chemical development Department will be here on the 20th instant. I propose to discuss this subject with him with a view to see ~~how far we can~~

(a) whether we can secure one or more Lease/Lend Electrolytic Alkali units, and

(b) ~~and~~ whether the Government of India could be made to agree to afford financial aid to this scheme (treating it as a War Industry). This aid can take the form of the Government of India subsidising the scheme to the extent of the extra capital cost that has to be incurred owing to boom prices.

(c) Mr. Sastry has promised to bring me the details regarding how much of the equipment could be made in India and also the details of the constitution and formation of the new company, after the Birthday.

Dev. Secy

16/7/43

Ce 17/7 17/7

Letter No dated 17-7-43 from M. S. G. Sastry Refers Sir forwarding an extract from 45 proceedings of Basic Chemicals Committee Concerning Caustic Soda and bleaching powder.

19) Draft acknowledging letter.

20) Mr. Ch. Secy has noted on a separate (Secret) file that Mr. C.C. Desai did not arrive at Mysore as he had to cancel his programme.

21) file

No. F 590 dt 27-7-43

TBR 26/7(W)

Dinner 8th
& Fic; Chief Whs
Lochiel Bay (31-7-43)

WD 1140—GPB—50,000—6-11-42

Starting of an Electrolytic alkali plant in W Pak

5425/1018
Se

Continuation Sheet. Sc File No. / Current No. 9 of 43 Page.

OFFICE OF THE MINISTER FOR INDUSTRIES & SUPPLIES
JUL 29 1943
No. 4588

22) Submitted after [illegible]
Refce paras 18 & 20.
27/7/43
Tr 27.7.43

24) Ce 27/7

Tr 27.7

[illegible] Desai had to postpone [illegible]
Desai may be [illegible] with Mr. Sastry also

31/7

Ce 7/8

27) Draft [illegible]

HMP 3/8/43

28) Issue
(Fair copy may be sent to Sec by Express)
Tr 4/8/43

1. Mr. S.G. Sastry
[illegible] D.O. No. 7866 dated 24-8-43
[illegible] expressing him to [illegible]
with a suitable draft letter to Mr Desai on the points raised

HMP 5/8/43

3) Letter dated 9-8-43 from Mr. S.G. Sastry (Retd. Dir. of Ste) forwarding a draft letter to Mr. C.C. Desai D.O.C.S. Dy. Director General of Supply.

29) Submitted for perusal & orders (Refce para 26)

HMP 14/8/43

30 Dec Sec)

Tr 17/8/43

OFFICE OF THE MINISTER FOR INDUSTRIES & SUPPLIES
AUG 20 1943
No. 1039

WD 1140—GPB—50,000—5-11-42

14/8

31 [illegible])

Ce 19/8

P.T.O.

Tr [illegible]

Electrolytic alkali plant- [illegible]

I understand that Mr Desai has now been transferred to the Department of Ind. & Civil Supply. I have mentioned this scheme to the Hon. Sir A.R. Mudaliar & sought his help, when he was recently here - Dr Bhatt, Dir of Chemicals is expected here shortly, & we could discuss the details with him & give him a formal letter re: the Assistance required from the G.o.I. Mr. Saxby might be informed of Dr Bhatt's visit when the date is known.

Dev Secy)

9/9/43

9/9

9/9

Put up

Sir P.R.M.

Submitted for orders whether the draft as modified by the Minister may issue or whether the visit of Dr Bhatt be awaited.

11/9/43

10/9

Dev Secy)

10/9

This was not one of the subjects discussed with the officers of the Govt of India on 7.10.43. For orders.

Dev Secy)

14.10.43

As directed by the Hon. Member, I enclose this subject (re. assistance from G.o.I. in obtaining an alkali plant in a fair which I gave to Mr. Taylor on 7.10.43. Whether Mr. D.G. Lakdawala saw both Dr. Bhatt & Mr. Taylor. Ask him if he discussed this matter with them & if so, with what result.

14/X

15/10

Recd for the Secy's signature.

This was linked to file D.W. 6308/1020/1816.

14/10/43

Letter dt 15-9-43 from Mr S. & Saxby enquiring whether any reply has been received from Govt in this matter.

Draft letter

Sec 16/x

Sec 16/x To Mr. Secretary Lastry

Re this file,

2861 of 29/x

Calling for the papers

Secs A 3/11

Letter No. dated 1-11-43 from Mr S.G. Lastry furnishing the information called for.

Mr Lastry says that he did not discuss the subject with Mr Dugan at Mr. Bhan and he wants to know whether he may write him & make enquiries etc re Plant - required

No hurry for orders Refer Para 36.

(Under Secy) 9/11/43

6/11/43

6 Sec

Para 36 should read Mr. Target to be withdrawn appeal of this. Perhaps, we may following it up by a formal letter to Mr. Bhan

(Under Secy)

Yes, Mr Lastry may please follow it up too.

OFFICE OF THE MINISTER FOR INDUSTRIES & SUPPLIES
NOV 18 1943
No. 2530

106

Electrolytic Alkali plant — State

Continuation Sheet. File No. / Current No. 9 of 43 Page.

This file has been taken for records of Secretariat and Reference held in Constituent Assembly

OFFICE OF THE MINISTER FOR INDUSTRIES & SUPPLIES
DEC 22 1943
No. 3481

Draft held — for orders of Hon'ble Minister may be sent in form of a D.O.
Refce. para 42 & 43.
Fair draft please
4.12.43

Fair draft sent
Dev Secy
9.12.43

Chemical Engr. as above
15/XII

Typed draft sent
Dev. Secy.
20.12.43

For perusal before issue
21/XII

Issue
24/XII

D. 4423 dt. 6-1-44

The Secretary to Govt. of India
Supply Department
New Delhi

Requests certain statistics from Govt. of India in regard to electric steel produced in the State

WD 1140—GPB—50,000—5-11-42

Memo No D 4426-7 dt 6-1-44

Forwarded a Copy of the above to Mr S.S. Secy. to Govt. of India Supply Dept. New Delhi

Letter dated 4-1-44 from Mr. S. S. Sastry Retired asking the Statement that during his last visit to Delhi, he was informed that Mysore plants had been included in the list of equipment to be obtained from U.S.A by the Govt. but the matter has not progressed much further.

Dated for perusal.

2 Mr. S. S. Sastry reports that during his last visit to Delhi he was informed that the proposal of the Govt. of India to obtain the Electrolytic alkali plants from the U.S.A under the lease-lend arrangements has not progressed much further and that he is of opinion that there is no likelihood of the plants being readily to Govt. basis in the near future.

3 He has therefore stated that the Mysore Scheme should be considered further without the expectation of obtaining the plant from the Govt. of India and has requested whether he can be of further assistance to the Govt. to complete the Scheme.

4 Dated for perusal. The receipt of a reply to our letter to Mr Dargan Director General of Supply, dated 6-1-44 may perhaps be awaited before considering the question of availing of the assistance & services of Mr Sastry.

If agreed, Mr. Sastry may be asked in the meanwhile, what way he could be of assistance in this matter.

5 The receipt of a reply from

Pl.

Please put up
(1) copies of discussions at Mysore, record note given to the Targetts &
(2) extracts of proceedings of our Board of Scientific Research.

Subtr & extract of the proceedings of the Session of the Board of Scientific Research meeting held on 26/11 at Bangalore in the Physics Laboratory

file Pl 21/1

Pl 21/1/44

Sd 10/1

XX

XX

Please put up this file

Pl 27/1

Electrolytic Alkali Plant

Continuation Sheet. I & C File No. Current No. of 3168/44 Page. 1825

56

Mr Targett may be awaited. Meanwhile Mr Sastry's letter may be acknowledged.

57 Dev Sec) 29.1.44

Has not a reply since been received in reference to our letter to Mr. Targett?

Ce 31/1

58 Reply has not been received yet. 31/1

Dev Sec) 2/2

2/2

59 Reply from the D.D. of Supply stating that the letter sent to Mr. Targett has been forwarded to the Industries & Civil Supplies Deptt. for consideration (since traces in the Br) is sent for perusal.

from the D.D.C.S. D.O. letter d. 14/1/44 intimating that the letter has been transferred to the Ind. & Supplies Deptt. for consideration

31/2 60 Mr. Ganapathi Iyer tells me he discussed this matter at length recently, along with other items. Awaits his report.

Ce 31/2

31/2

Srs A 1/2 4/2

Ltr. F. 11-18 (6)/44 & 10.4.44 from Rao Bahadur H. M. Patel, Govt of India, Dept of Industries & Civil Supplies stating that it is not possible to forward the establishment of a Caustic Soda & Chlorine plant in the State & that the matter would be reopened when the import situation is clarified.

61 Mr Ganapathi Iyer has said, in his report, about the Plant as under:-

x D.SJ.38

Electro Alkali Plants

FOR INDUSTRIES & SUPPLIES
MAY 1 1944
No. 6701

"Both mr. Aftab Rai & Mr Dr of Chemicals stated that even the Supply Dept has been refused permission to import under lease/lend the 3 Alkali plants which had been proposed to be obtained from the U.S.A. Hence it was not possible to obtain a fourth plant in the Myson State under lease/lend. Mr Parsett also confirmed the statement. If the plant is to be imported under the usual trade arrangements, the Industries, Civil Supplies & Commerce Depts may be approached" Subs & orders. Refer Para 60.

62) Dev Secy) To DS-4 file

28/6 63) ~~for comment~~ Ce

Mem. Secy) Ce 29/4 To 4/5

64) The Hydari & Mr Patel might be asked if one of the 3 plants now ~~being~~ under negotiation cd not be allotted to us —

MAD 6/6

Ce 7/6

65) D.O. draft is submd for approval

66) Dev Secy) To 21/6/mm

67) Issue Ce

24/6.

Sec A

21/6 D 8312 dt 24-6-44. 21/6 To 28/6

To H.M. Patel Esq

enquire whether it would not be possible

which have one of the 3 plants for which the Indian Supply Mission

27/6

Electro Metals Plant. 31

Continuation Sheet. File No. of Page.

Current No. 9/c 9-43

D.O. Letter no. Dte. F. 19-CM(7)/44 dated 8th July 1944 from Mr. T.C. Boyd Dept of Ind. & Civ. Sup. Govt. of India stating that the request for an Electrolytic Plant will be considered along with other applicants when the question of allotment of the plants is taken up.

Subd. for kind perusal Refce. Para 64.

DEW Sec'y

15/7

15/7

Sec'y

18/7/44

Ce

26/7

Sec'y

Mr SG Sastry may also be sent

File may be shown to Dr Chemicals also.

6/8

Ce

7/8

8/8

Sec'y

Draft is subd. with refce. to Para 71. in the first instance.

DEW Sec'y

9/8

9/8

Sec'y

9.8.44

Ce

11/8

Draft submitted with memo to Dir Chemicals.

12/8.

D 1118 D/15-8-44

To S. G. Sastry Esq

Reference that Mysore's claim will be considered along with other applicants when the question of allotment of the plants is taken up.

OFFICE OF ... FOR INDUSTRIES & SU...

JUL 27 1944

No. 793

TYPING

Electrolytic Alkali Plant.

311

Continuation Sheet. | File No. | Current No. 9/c 9-43 | of | Page

21-0-109/43-44

25-8-44

Forwarded with compliments to the Director, Engineering and Chemical Industries, for perusal and return.

By order,

Dy Secy. to Govt.
Dev. Dept.

26

Seen and returned.

Dir. Secretary
(with Compts)

Director of Chem. & Engg Industries
Camp. Mysore 27.8.44

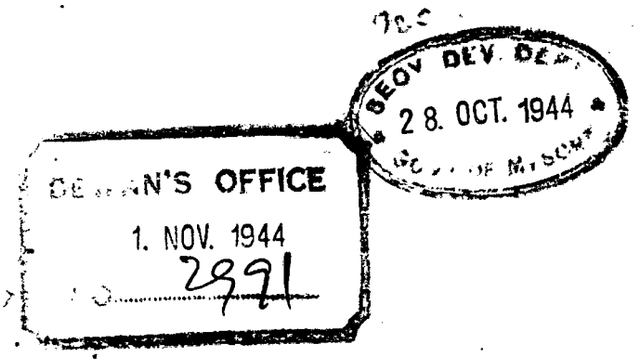
Sec B

31/8

Dc 9-43-12 311 2457/595

REPLY

(To be written on this margin)



OFFICE OF THE MINISTER FOR REVENUE AND SUPPLIES

NOTE
(Camp Mysore)

Dated ...27th..October.....*1944*.

28 I shall be glad if the enclosed cablegram embodying an enquiry for the Electrolytic Alkali Plant is sent to Mr. Felton immediately.

27/10

Development Secretary)

29 2) Issue a memorandum
Ce 28/X

Issued. 29.10.44.

~~Rejected~~

30) Resubmitted as per para 2 supra
Nom 30/10 Dev Sec) 31 30/10/44
32 For perusal Ce 30/X
3256/31/10 Hon. Dy. Secy) 33 31.10

34 A copy of this may be sent to Mr Viswanatha for information

Telegram dated 30th Oct 44 from Mr. G.E Felton informing that he is taking immediate action regarding the electrolytic Alkali plant.

2/11/44
Ce 2/11

D 2757 dated 3-11-44
To B. Viswanatha E.
Forwarded a copy of the above cablegram for information.

35
Subd
Dft of a letter to Mr. Viswanatha forwarding
Nom 2/11 a copy of the telegram submitted

2928

~~E.C.~~

Letter 91/11/44 from Rev. G. E. Felton to Rev. P. K. Krishna Rao re. alkali plant, with remits from Mr. P. & Devan.

2891

87 The main file has been sent to Dy. Secy. (Com.) & P. & C. for urgent remarks. Desp. will also be sent to him in continuation as per marks.

Dy 13/12 E.O. 264/44-5 ~~dated~~ 13-12-44

88 Forwarded by to the Commissioner Development & Planning in continuation sent with this file No. E.O. 253/6/44. 1244 file main file / for favour of ~~remarks~~ remarks.

E.C. 7974/44-5
14-12-44

Ks.

Put up with the main file. Ks. 14/12

Bro

for Dev Secy.

Dy 13/12

E.C. 1037 mms

E.O. 264

2891

Returned with compliments.

89 The main file on the subject has been forwarded to the Chief Electrical Engineer for opinion whether it would be possible to supply electric power at a rate not exceeding 0.15 of an anna per K.W.H. to the proposed Company.

90 I have requested the Mysore Paper Mills, Ltd., to intimate if they are agreeable to the grant of a portion of land now belonging to the Mills to the Company in exchange for an equal extent of contiguous land elsewhere.

91 I request to be informed if a further communication has been received from Col. Felton as promised in his letter under reference.

Commissioner of
Economic Development & Planning.

Ks.

Dev. Secy. (with Compliments)

21 — Alkali plant

24 — 9/43.

2928, 3158

CV Saxena for perusal

(An interim reply cable has been issued wherein Mr. Fellan has indicated that inquiry abt. alkali plant would be sent by abt. 26th January 45)

2/8/45

File also linked 24 3/1/45

3 JAN 1945

Dev Secy) 93 To 31/1/45

Commr Eco. Affrs. O/C

94 CV 31/1 To 5/2/1

E.C.7.1047/44 5-1-45

4.0.283 / 44-45

4.1.45

no. E.C.7 1047/44-458 6.1.45 / 95

5/1/45

Dev Secy) (Pl see linked file 24 301/43 - Dn. 2891)

CV

T. 998 (F. & C. S.) 4261

INDIAN POSTS AND TELEGRAPHS DEPARTMENT

C. Class / Prefix _____ Code _____ No.

Recd. from _____ By _____

Sent at _____ H. _____ M.
To _____
By _____

Office Stamp.

Handed in at (Office of Origin).	Date.	Hour.	Minute	Service Instructions.	Words.
				Recd. here at H. M.	

NLT 1 389/18 BOSTUNMASS 16 IRC 23

NLT M A SREENIVASAN MINISTER OF REVNUE BANGALORE

= ALKALI CHLORINE PLANT ESTIMATES AIRMAILED TODAY

STOP PLEASE INFORM GCURLIE INDIAN VISITOR LOCATED

= GEORGE FELTON

N. B.—The name of the Sender, if telegraphed, should be written after, but separated from the text.

Routine Notes.

[To be used only for notes, requisitions, etc., not intended for permanent record.]

97

The main file D.N.S. 2891/37/58
has been sent to the Cairo D.N.I.
on 18/1/45. Dft letter to Mr. Gamble
for cyphering.

24/1/45 97

Issued & Despatched with 25th
to ministry of the Interior
on the file

100 Sent 101

D.N.I. 26/1

102

24.1.45

C.N.I. 1/2/45

OFFICE ... STER
FO 37
No. 5626

25/1

N.B.— Should routine notes be written on small slips, the notes must be copied, or slips pasted on this form.

Electric alkali plant

D/2 file

C. F. 74.]

Routine Notes. 4217, 4539, 4976

S75F

WD 07/11—GPB—50,000—29-7.

[To be used only for notes, requisitions, etc., not intended for permanent record.]

Letter No. nil of 1/2/45 from Rly. S.G. Sats quoting inform re... wire estimate for electrification Pokhran siding to Rly. Stat.

D. S702/2.2.45

The estimate stated to have been received on 16/1/45 has not yet been received. May Rly. be reminded for the Rly. Station by Cable?

Letter No. nil dated 16.1.45 from Rly. Station submitting a dup. copy of the estimate with a sketch of the plant

D/3 16/2/45

The original copy of the estimate has not been received so far, though the duplicate copy has been received.

The file may perhaps be sent to the Cantt. D.P. for taking copies of the estimate, & thereafter for necessary further action.

Submitted for orders

107

D/3 2/3/45

Dy Secy) CE 1/3

108 Secy (CE 2/3 CE 3/3

N.B.—Should routine notes be written on small slips, the notes must be copied, or slips pasted on, this form.

File & Bl Cantt 5/3

D/3 5/3

Electric Alkali Plant

(C. F. 74.)

9th 9/43

Routine Notes. 4976, 5438

[To be used only for notes, requisitions, etc., not intended for permanent record.]

Letter dated 16/1/45 from Mr. Allen forwarding duplicate copy of their estimates etc (by sea mail)

Minute on the P.W.D

(9d) M. A. S. 8/3.

(10) This may be referred to the Commr. for Economic Development & Planning for study & submission of a short note on action proposed.

(9d) N. M. 11/3/45

(11) (9d) T. M. 9 14/3/45

No. N.E.D 386 of 19.3.45

Forwarded with compliments to the Commissioner, Development & Planning for favour of taking necessary action (vide para 105-109 & 110) & may return with remarks.

Bo Bhamawa

for Development Secretary

16/3/45

ECF 1404/445

20-3-45 Minute paper. Put up a note. Eng.

N.B.— Should routine notes be written on small slips, the notes must be copied, or slips pasted on this form.

C. F. 74.]

Routine Notes.

WD 07111—GPB —50,000—29-7-44

[To be used only for notes, requisitions, etc., not intended for permanent record.]

N.B.— Should routine notes be written on small slips, the notes must be copied, or slips pasted on this form.

Electrical Stores Manual

C. F. 74.]

9th 9-43

Routine Notes. S/83 S/195 S/234

[To be used only for notes, requisitions, etc., not intended for permanent record.]

Letter No. E.C. 1319/44-S dated 15th March 1945, from Com'r. D & P. forwarding Cys of letter from Messrs Sanderson Brothers & Newsum Sons & Co. Ltd. Leeds & Yorkshire Corp orders

Do. letter No. nil dated 5/3/45 from Messrs. S. & S. Sayle, Quoting for a Cyn of the Estimate for Plant used by Messrs Felton.

The main file on the subject bearing Dy No. 4798 has been sent to the Devon on 8/3/45

The estimate (together with the Sketches) are proposed to be sent to the Com'r. D & P for obtaining Copies thereof as the Messrs Felton orders are placed on the main file. If approved, Messrs Sayle will be invited to approach the Com'r. D & P.

Further letter of Chairman Messrs proposed to be sent by the Com'r. D & P will be awaited.

Dev Sec) yes 9/3/45

Dy 1373 DO Letter sent Dev Sec) Issue 10/3 10/3

N.B.—Should routine notes be written on small slips, the notes must be copied, or slips pasted on this form.

Electrolytic Alkali Branch

C. F. 74.]

Routine Notes.

5234 5 Lly

WP 07-211—5 GPB—50,000—29-7-44

[To be used only for notes, requisitions, etc., not intended for permanent record.]

D 6329 of 21·3·45
To Mr. S·A· Scobie
State Head the original copy of the extract with the British Board from Mr. Fellin has been sent to the Company Dept and Head he may apply there & obtain the copies of the same.
D 6330
Copy to the Comm. Dept.

Letter No. 9707 dated 29/3 /45 from the Chairman, Mysore Paper Mills stating that the decision of the Board of Directors re: the grant of land for the mfg of alkali.

The final decision of the Board is awaited. The main file has been sent to the Council section & this paper will be placed on that file on its receipt.

Dew Sec)

27/3

7/4

11/4.

2/4/45

N.B.— Should routine notes be written on small slips, the notes must be copied, or slips pasted on this form.

6668 / 7749
7465, 8102, 8104

6477, 6676, 6668.

1)
The main file on the subject is before me
Secy to Govt. Ry. & Tpt. (Defence) D. No. 5644) D. 4798
These papers will be placed in that file when it is received

Can you not obtain the file from Govt.
15/5 — 15/5
Ry. & Tpt. (Defence) 21/5/45

File returned from C.B. on 21/5/45 to Govt. Ry. & Tpt. (Defence) 21/5
4/6.

Letter dated 11/6/45 from the Secy to Govt. Ry. & Tpt. (Defence) asking for early orders re. alkali works.

2) The main file was sent to the Govt. Ry. & Tpt. (Defence) on 21/5/45 & orders are awaited

16/6/45 — The Minister told me the other day that he had sent the file to the Govt. Ry. & Tpt. (Defence) Secretariat.
18/6

Letter No. nil dated 8/5/45 from Dr. Felton forwarding estimate for alkali plant. "for ackn. with thanks & necessary action"

Minute on the D.O. Estimate for alkali plant may be ackd. 21/6.

D. Nos. 6676, 6668 placed in file No. 301/45 Concerning Alkali Works

1+2) Loring Voce calls now req. i for Rs. Rensal. The estimate for Loring Voce calls is stated to be ready.

Shorts.

3) Shorts are publicly quoted by the Associated Industries. They appear to have been prepared at the request of Dr. R.D. Chari, Repr. of the above Associated Industries & Dr. K.K. Ramaswamy for visits & copies of their rly

(D. Nos. 8102 & 8104.)

B/Kali industry

DK 9/43 7749, 8102, 8104, 104

May be sent to the Comm. D+S for forwarding to the Parties concerned. The main file re: Grant of Concessions has not yet been rec'd with orders. Action

Dft ackd as per orders on the file also action

7/7/43

7/7/43

D LIB 2 D 16.7.43.
To Mr Felton
Acknowledges the receipt of his letter D/8.7.43.

1/ Extract of Proceedings & meeting on 23/7/43 re. Cawnpore Soda Scheme taken on the file. } Same placed on DK 301/43 DK 6676 - Concerning Mfg. Acc. Indus

Letter dated 18/4/45 from Mr. S.E. Felton forwarding the estimate of James Russell Esq Works Mgr Borax for alkali plant - using Allen Moore cells.

Letter dated 7.6.43 from Mr. S.E. Felton enclosing high estimate for alkali, urea plant &

D.O. Letter dated 31/7/43 from Mr. S. G. Sastry requesting for copies of the above estimate to enable him to check up certain figures before meeting the Minister on the 6th Aug

The following are the estimates for alkali plant recently received from Mysore

(1) Estimate by Westvaco Chlorine Products Corporation - Vorce Cells.

(2) Do - by James Russell Esq. Works Mgr. Borax Allen Moore cells.

Alkali industry

757

File No. 9/43

Continuation Sheet. Current No. 8104, 494, 496, 753 Page

(3) Chemicals (Rayh) by chemical Construction Co - electrolytic process.

Item (2) is the original details estimate copy one copy is available this are to be sent in original for copies of return

128 Dft letter to Hon. S.G. Sastry for consideration. (The main file has not yet been received with any estimate Card)

129 The main file is stated to be with the dewan

130 The estimates sent by Mr Felton are submitted for perusal.

131 Mr. SG Sastry wants copies of these estimates also. Papers if these be sent to him. Dft letter is Returned submitted for consideration.

132 (Dewsecy) To 4/8/45

He says Mr. V.A. Krishnan is coming for them. Await

Ca 7/8 To 7/8

for estimates

133) (Awaiting Mr Srinivasan coming as ordered To 10/8/45)

134) The estimates etc received from Mr Felton may perhaps be submitted to the Minister Dewan for perusal (in continuation of the main file)

135 (Dewsecy) To 10/8/45

Mr. Srinivasan may be put up with the main file after perusal by the dewan's

DEWAN'S OFFICE
27 AUG. 1945
No. 467

OFFICE OF THE MINISTER FOR PUBLIC WORKS
15 AUG 1945
No. 1A65

(with carbon copy)

Quotations & estimates for alkali plant

5183, 5195, 5234, 5438, 5644, 7464, 7749, 8102, 8104, of 494, 496, 757

(File read from C.S. linked to Dte 30/8/45 No. 6676 – Concessions to Alkali works" ar 21.9.45

21/9.

Letter dated 29.6.1945 from Mr F.C. Talbot forwarding the four plans of the alkali plant of James Russell Eng works.

137 for perusal. orders are separately under same re. the grant of Concessions to the Associated Newspaper Industries for obtaining a f.o.s. Coy. for the mfg of alkali.

Copies of the estimates referred to in para 127 have not yet been sent to the Comm. I.D.P. Mr. S.R. Srinivasa has also not turned up so far to take the estimates.

137 Mr. Talbot in another Connection has stated that he is not aware of the final decision taken in this regard. A reply is therefore due to him. The nature of reply to be sent to Mr. Talbot is for orders. The estimates & quotations obtained will any be useful to the Associated Newspapers Ltd to whom concessions have been granted the other proposal to start the industry under Govt. auspices being abandoned.

137 Submitted for orders.

Please log up

27/9/45

Draft letter to Mr. Talbot

Seen thanks obtained

10.

Quotations & estimates for alkali plant

General and Revenue Secretariat | Dh 9/43 File No. | 1376 | 9/h [App. F. III–2] of 194

Serial No.

Submitted as per minutes.

14/ After circulation, the file will be sent to the Commr. D.D. with a request to allow the Dist to take copies of the estimates & return the file.

Dewsey) 3/10/43

Dh 3 Yes M/

and ... Rs 6/10 P

... Dist ... Collector ... submitted the position re: alkali plant to Govt to Commr. D.D. with a request to allow the Associates ... to take copies of the estimates

... No. D2311 & D2312 dt 11-

(Dh 262-26 1-8 + 11-13 Copies in the file) Dh. 77

Forwarded with Compliments to the Commissioner for Development & Planning for allowing the Associated Cement Companies Limited Bombay to take copies of the estimates furnished by the Collector & to return this file at an early date.

Bo

Dh 22/10

ECF 65

22/10/43

NOTE—Contn. Sheet.

Bo Planning for Dewsey 14/10/43

PB

File No. of 194 .

General and Revenue Secretariat

Serial No.

EC703
10-11-45

Retransmitted with compliments. Mr. S.G. Sastry has, on behalf the Associated Paper Industries Ltd., Bangalore City, taken the copies of the Estimates furnished by Mr. Felton. The entire file of papers received is enclosed.

P.H. Nagappa
for Secretary to Government
Development Department
(On leave)

To The Secretary to Govt. 10/11/45
Development Department

For perusal. Orders re. the grant of Concessions to the Pulp & Associated Industries have already issued. Copies of the Estimates submitted by Mr. Felton have also been taken obtained by the Govt. The position has also been explained to Mr. Felton. In the circumstances, there appears to be no further action to be taken in this matter, the papers may be closed.

15/11/45

14/11/45

16/11/45

dc 9-43-1

Mr. S. G. Sastry, B.A.,M.Sc.(Lond),
Director of Industriez and Commerce
(Retired).

Sir Krishna Rao Road,
Basavangudi,
Bangalore City, 4th June 1943.

STRICTLY CONFIDENTIAL.

6816

Dear Sir,

Subject:- Starting an Electrolytic alkali Plant in Mysore State.

Since my entry into Mysore Service in 1918, I had the ambition to establish in our State the heavy chemical industry, with a view to be self-contained so far as the Mysore State is concerned. The Heavy Chemical Industry has two branches; (a) Acid branch commencing with Sulphuric Acid (b) the alkali branch commencing with caustic soda or sodium carbonate, to begin with. The acid branch has developed satisfactorily at Belagola and there are signs of further development at Belagola as you are well aware. Regarding alkali industry, I beg to inform you that nearly 13 to 14 ye years ago, the Government of Mysore accepted a scheme of mine to establish a pilot electrolytic alkali plant at Bangalore costing, about a lakh of rupees, for the manufacture of caustic soda and bleaching powder. Just before orders could be placed for the plant and equipment in America, some other local British interests intervened and the Government decided to postpone the inauguration of the scheme on the plea of financial stringency. The then Director of Industries and Commerce, who was advised by Dr. H.E. Watson, Professor of Chemistry, Indian Institute of Science, did not elect to press the Government for a reconsideration of the scheme. My persistent efforts in this direction were in vain. Except to show that our Government had actually sanctioned a scheme for the manufacture of alkali in the State at one time, which got torpedoed by outside influence nothing more need be said about it at the present stage.

The conditions in Mysore State are more favourable to-day for the starting of the electrolytic alkali plant. There is sufficient demand for caustic soda in the State and the out-laying districts to warrant the starting of the electrolytic alkali industry on a scale not less than that at Mettur. The idea to manufacture five to six tons of caustic soda per day and the corresponding amount of chlorine. A portion of chlorine will be converted into bleaching powder, a portion will be utilised for the manufacture of Ferric chloride which is required in very large quantities by the Public Health Department and a portion of the same could be converted into liquid chlorine. The Mysore Paper Mills,Ltd. require about 500 to 600 tons of caustic soda per year and a ton of chlorine per day in their present plant. The disadvantages of having only a single paper making unit are already being felt and proposals are under consideration to duplicate the Paper Mill equipment. If this is so, we can depend upon selling not less than 1,200 tons of caustic soda to the Mysore Paper Mills and about 600 tons of chlorine per year. This will account for more than 60% of our output of caustic soda and chlorine and the balance can easily be sold in the City of Bangalore itself. Therefore, without coming into clash and competition with the Mettur Chemical Corporation or other manufacturers of alkali in India, it is possible for us to have our own alkali industry on a modest scale. The special aspect mentioned refers to the economy cost we can expect so far as supplies to Mysore Paper Mills are concerned in that we may avoid the evaporation of caus soda solution into the solid state in which caustic soda is now marketed. If the plant is situated in Bhadravati adj

adjacent to the Paper Mills we can deliver the caustic soda to the Paper Mills in the form of a solution of the strength required by the Paper Mills. This would mean saving in fuel costs and probably a more economical rate to the Mysore Paper Mills.

During the last two months, I have devoted some time to the study of this question. Before I can go ahead and prepare a detailed scheme, I wanted to submit my views to you confidentially for a consideration of the idea contained in this letter and for letting me know whether I may proceed with the elaboration of the scheme so that I may be reasonably sure of Government help and support in this matter.

I had an informal discussion with Mr. Mohamed Hayath, General Superintendent, Cauvery Power Scheme, regarding the availability of power for Jog or Bhadravati and I mentioned electrolytic alkali industry in that connection. He told me that so far as he could give an indication, the cost of power at Jog for this industry may be 0.25 anna per unit and if the power should be made available at Bhadravati, it would be 0.35 anna per unit. He stated that power will be available unless it is ear-marked for some other special purpose.

In order to avoid duplication of effort in this direction, I shall be glad if this matter could be treated as confidential. Since the Government had already accepted a scheme of my own for the manufacture of electrolytic alkali more than 12 years ago and since I have devoted the best part of my life for the development of heavy chemical industry in Mysore State, I thought I would not be considered too venturesome if I submitted this idea once again for the consideration of Government. If the Government consider they have use for my humble services in this direction and favour me with their confidence, I should like to go ahed with further scrutiny of technical data and elaboration of other details.

I am aware that you will be very busy for another week or so in connection with the Sessions of the Mysore Representative Assembly. I shall be happy to receive an early reply in due course.

Yours sincerely,

M.A. Sreenivasan, Esq., B.A.,
Minister for Industries and Supplies,
Bangalore.

Mr. S.G. Sastry, B.A.,M.Sc.(Lond),
Director of Industries and
Commerce (Retired).

Sir Krishna Rao Road,
Basavangudi,
15th July 1943.

Dear Sir,

With reference to the interview I had with you on the 14th instant at your residence, I beg to submit herewith further notes on the proposed Electrolytic Alkali Plant.

Yours sincerely,

S Sastry

M.A. Sreenivasan, Esq., B.A.,
Minister for Industries and Supplies,
Bangalore.

Notes on the proposed Alkali Plant.

I. As compared with normal times, the price we have to pay for plant and equipment at the present time will be higher. If the plant can be installed and operated quickly and the war still continues, it is possible to cover a good portion of the extra capital costs. If the war should end suddenly before recouping a portion of capital cost, then we may have to face competition from plants which have not got a similar handicap. Frankly speaking, this aspect confronts every industrial development in India. It is the opinioncf experienced and prominent industrialists that even should the war mercifully end quickly there is such a tremendous lot of reconstruction to be taken up in all the devastated areas on the continent of Europe and other theatres of war that there is going to be a ~~good deal~~ of shortage of every kind of article in the world for at least a decade after the cessation of war. The destruction has been so great and with available productive capacity, it will be hard to rebuild Europe and other ~~xxx~~ areas in ten years. Therefore it is not unreasonable to expect that any plant started in India which has the special advantage of catering to a local market can stand on its own legs and face the post-war competition without fear. The peculiarly strong position of the industry which caters to a local market is referred to again the subsequent paragraphs. For the reasons stated, it is my opinion that no plant and equipment can be purchased at pre-war rates for a period of at least 10 to 12 years after the cessation of hostilities. We shall wait in vain for prices to come down and the result will be we miss the opportunity of starting the industry.

II. Competition with other producers of caustic soda, etc., in India namely, The Tata Chemicals, Ltd. Imperial Chemical Industries, Ltd. and the Mettur Chemical Corporation.

Regarding this the following facts are relevant. Regarding caustic soda the pre-war consumption (all imported) averaged 24,000 tons. The present demands are 35,000 tons of which 19,000 tons are required for requirements of war departments. Against this there is a production from Imperial Chemical Industries and Mettur Electrolytic Alkali plants 3,000 tons of caustic soda. Tatas are going to produce 6,200 tons from soda ash and 2,800 tons from the electrolytic plant. Therefore the Indian production falls short of the war requirements by 7,000 tons. The entire shortage will be 23,000 tons. The situation will be mitigated a little if the three electrolytic alkali plants, supposed to have been ordered by the Government of India, get installed at Bombay, Ahamedabad and Calcutta contributing in all another 4,000 tons of caustic soda. Even then the shortage will be 19,000 tons. Therefore in the post-war period in order to make India self-contained production will further have to be increased. But if a plant caters to the needs of a local market in its own immediate neighbouring~~hood~~ competition from Indian and foreign producers need not be feared at all. It is only when we operate in markets far away from the place of production ~~trenches~~ clashes are likely to occur. In the proposed scheme the idea is to supply the Myscre markets, with very little, if at all, available for export outside the State.

Simultaneously with caustic soda, chlorine is also

also produced and even regarding this chemical there is a ~~tremendous~~ shortage. Chlorine is used in the form of bleaching power and also as liquid chlorine. The chlorine deficiency in India at the present time is 6,000 tons. This amount of chlorine in terms of bleaching powder will be more than 15,000 tons. Therefore, there need be no anxiety regarding the disposal of bleaching powder in India after utilising whatever quantity is required in the locality.

III. Dependability of the Mysore Paper Mills for disposing of a portion of the output.

It has been observed that the proposed plant is conditional on the co-operation of the Mysore Paper Mills. This is so. The reasons for believing that such a co-operation will be forthcoming is due to the fact that it will be in the interests of the Paper Mills itself, ~~The purchase of chemicals from~~ the proposed plant which will be in a position to offer prices substantially lower than any other competitor. The Paper Mills want caustic soda and chlorine. The present plant gets about 600 tons of caustic soda per year and produce half a ton of chlorine per day even though its requirements happen to be a ton a day. Even granting that the Paper Mills do not want to duplicate their plant their business is sure to come to us. This will amount to one-third of the proposed production of the Electrolytic Alkali Plant and is disposed of on the spot. In the caustic soda industry, the cost of concentrating caustic soda solution to the solid state, and also packing the same in sheet iron drums and sending it to the places of consumption will amount to at least 40 per cent of the price. It will be the same percentage if bleaching powder has to be purchased from the open market. If the proposed Elecrolytic Alkali Plant is situated by the side of the Mysore Paper Mills the latter will receive

receive their supply of caustic soda and chlorine by simply "piping" from one factory to another, and one can imagine the advantages of such a system to both the concerns.

I cannot say definitely whether the Paper Mills is going to duplicate the plant for certain. But the question has been considered for a long time is a fact. The consultations I had with Managers of other Paper Mills (when I was connected with the Paper Mills) leads me to believe that all over India, not only in the paper industry but also in other industries, industrialists have come to realise that relying on a single plant imposes certain handicaps, that steps should be taken to ~~increase~~ production and also ensure continuous production at least ~~a~~ portion of the output by installing duplicate plants. It will not be such a fantastic idea to think that the Mysore Paper Mills will go in for expansion very shortly.

If the Paper Mill does not expand, the Indian market is big enough to absorb our surplus production after satisfying the needs of the industries in the Mysore State.

After Paper Mills at Bhadravati our chief consuming centres will be textile mills in the State and the soap industry. The textile industry will require both caustic soda and chlorine and the soap industry will require only caustic soda. I am not at all ~~anxious~~ doubtful about our being able to dispose of our production mainly in the State of Mysore.

IV. How much of the equipment can be made in India.

I shall have to scrutinise this aspect a little more and I shall submit a note at an early date.

V. How much are we to depend on the Controller of Imports for priorities for equipment and machinery.

At this stage we may state that we want priority for the following:-

(a) Electrolytic cells and spares.
(b) Motor Generator Set to convert alternate current to direct current.
(c) Vacuum Evaporator.
(d) Hydrogenating Plant.
(e) Miscellaneous auxiliary equipment.

VI. In the previous paragraph mention has been made that we shall have to depend on the Controller of Imports for a Hydrogenating equipment. This requires some explanation and this was not alluded to in my letter of 4th June 1943.

The chief item of cost of production at Belagula in the ammonia plant and at the Vegetable Oil Products Plant at Bangalore happen to be the cost of production of hydrogen. In the proposed Electrolytic Alkali Plant in my scheme we shall obtain hydrogen as a byeproduct which is of no value and which will have to be blown out into the atmosphere unless it is utilised on the spot. If we can couple a hydrogenation plant with the Electrolytic plant, we shall obtain our hydrogen "for nothing", from the point of view of hydrogenation section. We can produce enough hydrogen to treat 12 to 15 tons of ground-nut oil per day. This is more than the capacity of the Bangalore plant and the subsidiary Madras plants combined. The Vegetable ghee market in India is an ever expanding one and there is scope for a number of other plants in India.

Another product which we can manufacture on the spot at exceedingly low costs of production is hydrochloric acid. ~~A portion of the~~ Chlorine and ~~we produce and~~ hydrogen ~~we can get as a bye-product~~ can be made to combine and produce hydrochloric acid by the sythetic process. We can produce about a ton of hydrochloric acid per day which uses up nearly a ton of chlorine per day.

Chlorine may be used for making Ferric Chloride required in large quantities by the Health Department.

VII. General.

I do not know whether I have in these supplementary

supplementary notes touched upon all important aspects that were discussed in my personal interview with the Minister. But I feel that these supplementary notes should help the consideration of the proposal further.

Bangalore,
15th July 1943.

Director of Industries
and Commerce (Retired).

Appendix F. G.—1]

SUBJECT..... Starting an Electrolytic alkali plant in Mysore State

.....

.....

Diary No. of letter replied to.....

General and Revenue Secretariat

( )

the *194* .

Date of issue.....

Signed by.....

List of enclosures.....

Copied by.....

Examined by.....

~~Sir~~ Confidential Section

File No.

Serial No.

No.

To

~~The~~ S. G. Sastry Esq B.A. Chief Engineer (Retired)
Sir Krishnaraja's Road
Bangalore, Bangalore City

Dear Sir,

With reference to your letter dated the 4th June '43 to the Minister for D & S, on the above subject I am desired to request you kindly to discuss the matter scheme with the Minister for D & S in his chambers on the ... July at .....

Yours truly

for Secretary

WD 04161—GPB—60,000—24-10-41

Mr. S.G. Sastry, B.A., M.Sc.(Lond).,
Retired Director of Industries
and Commerce in Mysore.
Rs : c : -

Sir Krishna Rao Road,
Basavanagudi,
Bangalore City.
28th June 1943.

Dear Sir,

The Board of Industrial Research and Scientific Advice (Sir S.S. Bhatnagar, President) appointed a sub-committee ~~of~~ to look into the position of the Heavy Chemical Industry in India early in 1942. I was invited to be a member of that Committee and the Government had permitted me to accept the membership in my personal capacity. Last year when I attended a meeting of this sub-committee I drew my travelling allowance from the Government of India.

Another meeting of this Committee will take place at Calcutta on July 2nd. I am leaving this for Calcutta to-night and expect to return to Bangalore about the 9th or 10th of July. As soon as I return, I shall see you and inform you of any important subjects discussed at the meeting and also the Committee's recommendations.

The following are the members of this Committee:-

1. Sir Cyril S. Fox, Chairman (Director of Geological Survey of India).
2. Sir S. S. Bhatnagar.
3. Sir J.C. Ghosh,
4. Mr. S. Sen of the Bengal Chemical & Pharmaceutical Works Ltd.

p.t.o

542

Mr. S. G. Sastry, B.A.,M.Sc.(Lond),
Director of Industries and
Commerce (Retired).

Sir Krishna Rao Road,
Basavangudi,
17th July 1943.

Dear Mr. Sreenivasan,

I enclose herewith for your information extract from the proceedings of the Basic Chemicals Committee (Lieut.-General C.A. Bird, C.B.,D.S.O.) concerning caustic soda and bleaching powder.

Yours sincerely,

M.A. Sreenivasan, Esq., B.A.,
Minister for Industries and Supplies,
Bangalore.

Dear Sastry

I) Acda with thanks
2) Letter Place in connected file
for discussion with
Mr Desai (I.C.S.) at
myson (Britsday)

Extract from the Proceedings of the Basic Chemicals Committee (Lieut.-General C.A. Bird, C.B.,D.S.O.),

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SODIUM HYDROXIDE (Caustic soda).

The pre-war consumption (all imported) of this material averaged 24,000. The present demands are for 35,000 tons (19,000 being for War Department requirements). Against this, there is a present production from two electrlytic chlorine plants of 3,000 and a further quantity of 9,000 is expected to be available from Tatas' Alkali plant next year. The total probable production therefore,(12,000) still falls short of War Department requirements by 7,000 and of total requirements by 23,000. Even should the three electrolytic chlorine plants materialise only a further 4,000 will be produced from this source.

The alkalies are almost equal in importance to sulphuric acid as basic chemicals. Caustic soda is required in the development of nearly all new stores. The manufacture is bound up with that of soda ash. Recent examples of extra requirements are substitute wood for corks, and the preparation of used X-ray film for eyeshields. The fact that two large firms have decided to manufacture alkali in India, and that the maximum production (at present un-predictable) falls short of pre-war requirements of both soda ash and caustic soda, appears to justify the establishment of a further plant of the same size as those now about to operate. Against this there is the unlikelihood,(based on the very long time, ~~xxx~~ about five years which has been taken in establishing I.C.I. and Tata plants) of getting such a scheme operative within two years and the fact that Magadi Soda can be drawn upon using a fairly short and safe shipping route.

It is ~~in~~ any case strongly recommended that purely as a War measure the organised production of caustic soda liquor from Reh deposits, and the collection and extraction of Reh in replacement of soda ash should be undertaken under arrangements made by the Provincial Governments concerned, with financial assistance if necessary from the Central Governments. It is understood that this problem was studied before the war and that information is therefore available upon which work could be started at once.

A possible production from this source of the equivalent of about 15,000 caustic soda would at least ensure some supply in the event of shipping losses.

CHLORINE.

(a) For purposes other than bleaching powder.

Requirements are 2,660 and production is 360. Therefore, deficiency is 2,300.

(b) For bleaching powder.

Normal Civil requirements are 7,500 (textiles), 2,500 (paper),1,000 (public health), and 500 (rubber) total 11,500.

This can be reduced to "esential" requirements of 6,000 plus 1,500 (produced locally) i.e. 7,500/- (Seven thousand and five hundred).

War Department requirements are 2,500 (indirect)

(indirect) plus 8,000 (stabilised - direct) - total 10,500.

Total requirements are therefore 18,000.

Indigenous production is 4,000 and Tatas' are expected to also manufacture 4,000 soon.

The deficiency is 10,000. Taking 40% of bleaching powder as chlorine, the chlorine deficiency is 4,000.

--

The total chlorine deficiency, (a) plus (b) is 6,300.

The Committee strongly recommend that three electrolytic plants be supplied, each of annual capacity 1,500 tons. The above figures show that the need is greater than ever. It is emphasised that manufacture should be started without delay, particularly for War Department needs (titanium tetrachloride, chlorinated paraffins, etc.) and that the plants should be located where the final product is to be prepared.

It is pointed out that chlorine can be easily prepared from pyrolusite (available in very large quantities) if sufficient hydrochloric acid is provided.

"E x t r a c t"

Dated 27th July 43

Dear Sir,

I am directed to acknowledge with thanks the receipt of your letter dated the 17th July '43 together with the forwarding an extract from the proceedings of the Basic Chemicals Committee Concerning Caustic Soda etc

Sd. by Mr. T. Ramanna

for Secy.

26/7/43

To

M.S. F. Lesley Esqr M.A.etc
Bangalore (Retired)
Sir Krishna Kripa Road
Basavangudi, Bangalore

Appendix F. G.—1]

SUBJECT..... Starting an Electrolytic Alkali Plant in Mysore State

Confidential

Section

File No. 9-43

Serial No. 2

Diary No. of letter replied to.....

D.O.No. 1866

To

General and Revenue Secretariat

( )

the 194 .

[ ]

Date of issue.... 6th August 43

Signed by.... Mr. G. F. Wrangham

I am desired to invite kind reference to the discussion you had with the Minister for I & S, on the above subject and to state that Mr. C.C. Desai I.C.S. Dy. Director General of Supply did not arrive in Mysore on 15th July '43, as expected, as he had to cancel his programme, it is therefore proposed to consult him through a letter

I am therefore to request you kindly to favour Govt with a suitable draft letter for the desired with special reference to the following:—

(1) Whether we can secure one or more Lease / Land Electrolytic Alkali Units, and

(2) Whether the Govt of India

List of enclosures.....

Copied by.....

Examined by.....

Could he please agree to afford financial aid to his Scheme (treating it as a War necessity) by way of subsidising his Scheme to the extent of the extra Capital Cost that has to be incurred owing to - hoped lower prices.

[illegible]

8/43

The Rt. Hon. Sir G. Lansbury Esqr MP., M.Sc (Econ)
Dr. Sir G. Scott (Retired)
Lin Kaithwaite Road Road, Bingwi
Birmingham.

de 9-43

Mr. S.G. Sastry, B.A., M.Sc.(Lond).,
Director of Industries &
Commerce (Retired).

Sir Krishna Rane Road,
Basavanagudi,
Bangalore City,
9th August 1943.

+++

STRICTLY CONFIDENTIAL.

1018

Dear Mr. Noronha,

Sub: Starting an electrolytic alkali plant in Mysore State.
Ref: Your D.O. No.D.860 dated 4th Aug. '43.

I enclose herewith a draft letter that may be addressed to Mr. C.C. Desai, I.C.S., Deputy Director General of Supply. I request to kindly send me, if there is no objection, for my information, a copy of the letter that will ultimately be sent to Mr. Desai.

Yours sincerely,
S Sastry

Charles Ec. Noronha, Esq., M.A.,
Secretary to the Government of Mysore,
Development Department,
Bangalore.

Enc: Two.

D R A F T.

Strictly Confidential.

To

Mr. C.C. Desai, I.C.S.,
Deputy Director General of Supply;
NEW DELHI.

Dear Sir,

Subject: CAUSTIC SODA

As you are aware, there is at present an acute shortage of caustic soda in India. The Basic Chemicals Committee, appointed by the General Head Quarters(India) (Master General of the Ordnance Branch) who went into this question thoroughly have estimated the present demand in India to be 35,000 tons a year, of which 19,000 tons will be required for War Departments requirements. Against this, there is a present production in the country of 12,000 tons, leaving a shortage of 7000 tons even for War Departments requirements. It is understood that the Government of India have placed orders in America for 3 electrolytic alkali plants which are expected to arrive shortly in India. Even the estimated output from these plants will not completely satisfy the War Departments requirements -- apart from the essential civil demands. Further, the increase of articles required for War purposes has increased the demand for caustic soda and it has become a matter of vital importance to increase the production of this chemical in India. (An extract from the report of the Basic Chemical Committee is enclosed herewith for ready reference). The Government of Mysore, as you may be aware, have established in the State one branch of the Heavy Chemical Industry by affording assistance for the starting of the Mysore Chemicals & Fertilisers Ltd., for the productic

p.t.

of Sulphuric Acid, Synthetic Ammonia, and Ammonium sulphate. The part which this factory has played in supplying practically its entire output of the chemicals for War purposes is well-known to you. There is a local demand for caustic soda in the state of Mysore to justify the starting of a caustic soda plant which forms the second important branch of the Heavy Chemical Industry. The Government of Mysore have on previous occasions prepared schemes for the production of caustic soda in the State but for some special reasons, had to defer the project. The present acute shortage of caustic soda in the State has brought the problem to the forefront. ~~As a further war measure, in the State of Mysore, the Government will be prepared to sponsor the scheme of~~ electrolytic production of caustic soda in the State if the Government of India will be pleased to afford facilities for the same, as they have done in the case of new enterprises that have come into existence to augment war efforts in this country. The assistance that will be required from the Government of India will be for the importation of the necessary plant from America under Lease/Lend arrangements or by securing special priorities. As an alternative to this, the Government of India may be pleased to hand over to Mysore one of the electrolytic Alkali Plants ordered by them and expected to arrive in India very shortly. This will save a lot of time. Mysore, luckily, has engineers and chemists with requisite technical knowledge and skill to straightaway install and operate the plant when it arrives in India. The other help that is required from the Government of India will be financial. There are a number of cases in which Government of India have re-imbursed new enterprises started as a War effort to the extent of differences in the prices of

(page 3

of plant and equipment in normal prewar times and the present day.

If the Government of India will be pleased to consider the grant of the two facilities mentioned above, the Government of Mysore, will be glad to reserve and release the requisite electric power required by this scheme. from their ~~Jog Falls Project.~~ grid It will be a source of some further satisfaction that Mysore will be having another chance of promoting further War effort in co-operation with the Government of India.

Yours sincerely,

9.8.43

Extract from the Proceedings of the Basic Chemicals Committee (Lieut.General C.A. Bird, E.B., D.S.O).

+++++

SODIUM HYDROXIDE (CAUSTIC SODA).

The pre-war consumption (all imported) of this material averaged 24,000. The present demands are for 35,000 tons (19,000 being for War Department requirements). Against this, there is a present production from two electrolytic chlorine plants of 3,000 and a further quantity of 9,000 is expected to be available from Tatas' Alkali plant next year. The total probable production therefore (12,000) still falls short of War Department requirements by 7,000 and of total requirements by 23,000. Even should the three electrolytic chlorine plants materialise only a further 4,000 will be produced from this source.

The alkalies are almost equal in importance to sulphuric acid as basic chemicals. Caustic soda is required in the development of nearly all new stores. The manufacture is bound up with that of soda ash. Recent examples of extra requirements are substitute wood for corks, and the preparation of used X-ray film for eyeshields. The fact that two large firms have decieed to manufacture alkali in India, and that the maximum production (at present un-predictable) falls short of pre-war requirements of both soda ash and caustic soda, appears to justify the establishment of a further plant of the same size as those now about to operate. Against this there is the unlikelihood, (based on the very long time about five years which has been taken in establishing I.C.I. and Tata plants) of getting such a scheme operative within two years and the fact that Magadi Soda can be drawn upon using a fairly short and safe shipping route.

It is in any case strongly recommended that purely as a War measure the organised production of caustic soda liquor from Reh deposits, and the collection and extraction of Reh in replacement of soda ash should be undertaken under arrangements made by the Provincial Governments are concerned with financial assistance if necessary from the Central Governments. It is understood that this problem was studied before the War and that information is therefore available upon which work could be started at once.

A possible production from this source of the equivalent of about 15,000 caustic soda would at least ensure some supply in the event of shipping losses.

****

9.8.43.

Ruled

The Concerned file is ~~with~~
before the Asst Secy (Development)
It was ruled on 10-9-43 (D.No.1018)

Asst
23/9/43 This was sorted to
Dev Section 11/9 &
Sec
28/9 has been returned
today (14/10/43). The
diary is not correct.
This may be
sorted with the main
Dev file. Sec

Conf

2110

Mr. S.G. Sastry, B.A., M.Sc.(Lond),
Director of Industries and
Commerce (Retired).

Sir Krishna Rao Road,
Basavangudi,
15th September 1943.

Sc 9-43-3

Dear Sir,

Subject:- Electrolytic Alkali.

May I request you to kindly let me know if any reply has been received from the Government of India regarding the plant and equipment for the above scheme? If you require any further information on the subject, I shall be glad to furnish the same as far as it is possible for me to do so. I feel that this key industry which is of tremendous importance to the State of Mysore should be established as soon as possible. It is a sound proposition and the State of Mysore will benefit by it in every way. Hoping to have a line in reply,

I remain,
Yours sincerely,

Charles E. Noronha, Esq., M.A.,
Secretary to the Government of Mysore
Development Department, General and
Revenue Secretariat, Bangalore.

Appendix F. G.—1]

SUBJECT..... Electrolytic Alkali Plant .....

.....

.....

Section 8c

File No. 9-43

Serial No. 4

Diary No. of letter replied to.....

No. D2861

To

General and Revenue Secretariat

( )

the 194 .

Dear Sir,

With refce to the Correspondence ending with your demi-o dated 15-9-43 on the above subject- I am desired to state, that you have given a formal letter to Mr. Targett D.F.S (who was here some days ago) regarding the assistance required by you & yr Dept in obtaining an alkali plant- also and to enquire whether you had discussed the matter with Mr. Targett and discussed with them with what results.

Date of issue..... 29/X

Signed by..... M. CEN

this subject viz: assistance from Govt of India in obtaining an alkali Plant, was brought to the notice of Mr Targett on 7.10.43. Possibly, you have also been seen by Mr Bhate & Mr Targett in this Connection. If so Govt would be glad to know if you discussed the matter with them & with what result.

List of enclosures.....

Copied by.....

Examined by.....

WD 04161—GPB—60,000—24-10-41

16/X

S. S. Sarkar Esqr.
Rehmat Manzil
Simla

Dr 9-43-S

Mr.S.G. Sastry, B.A.,M.Sc.(Lond),
Director of Industries and
Commerce (Retired),

Sir Krishna Rao Road,
Basavangudi,
Dated, the, 1st November 1943.

3106

Dear Mr. Noronha,

Reference:- Your D.O.No. D. 2861/ I & C
9-43 dated 29th October 1943.

ELECTROLYTIC ALKALI PLANT.

I did not discuss the subject of electrolytic alkali plant with Mr. Targett or Dr. Bhatt, since I was under the impression that you would write to one of them about releasing one unit of the three plants on order in U.S.A. I thought it would not be correct to discuss the subject without your knowledge. May I write to Dr.Bhatt now and make enquiries? Have you received any reply to your letter?

Yours sincerely,
S.G. Sastry

Charles E. Noronha, Esq., M.A.,
Secretary to the Government of
Mysore, Development Department,
Bangalore.

3106

General and Revenue Secretariat,

Mr. C. E. Noronha, M.A.,
Secretary to Government,
Development Department.

Dated, Bangalore 6th January 1944.

DO No. D. 4423

Sec 9-43-1

Subject:- Electrolytic Alkali Plant.

I am desired to request a reference to the proceedings of the Conference held at Mysore in the first week of October, 1943, between yourself and your officers and the officers of the Mysore Government in regard to the pending questions regarding the supply of chemicals, etc. A copy of the proceedings has been sent to you. You will also recall that I handed you in person at Mysore on 7th October, 1943, a note on the requirements of this Government, among which was assistance from the Government of India in obtaining an electrolytic alkali plant.

I need hardly refer to the present acute shortage of caustic soda in the country. His Highness' Government are anxious to establish the industry in the State as early as possible.

The assistance required from the Government of India is the grant of a permit for the importation of the necessary plant from America under the Lease/Lend arrangements or by securing special priorities. As an alternative, the Government of India may kindly see their way to make over to Mysore one of the electrolytic alkali plants ordered by them and expected to arrive in India very shortly. This arrangement will save time. The State has engineers and chemists with the requisite technical knowledge and skill to instal and operate the plant. The electric power required will also be made available.

I understand that there are a number of cases in which the Government of India has reimbursed new enterprises, started as measures of the war effort, to the extent of the difference between the pre-war and the present day price of the plant and equipment. His Highness' Government would be

P.T.O

glad if a like concession could be shown in this case also.

I am to request a very early consideration of these requests.

C.6/1

R. W. Targett, Esq., I.C.S.,
Director General of Supply,
Government of India,
Shah Jahan Road, NEW DELHI.

6/1

6 copies- Do No. D. 4423. Dy 6.1.44

Dear Mr. Targett,

Subject:-Electrolytic Alkali Plant.

I am directed to request a reference to the proceedings of the conference held at Mysore in the first week of October, 1943, between the officers of the Mysore Government and those of the Supply Department of the Government of India in regard to the pending questions regarding the supply of chemicals. etc. A copy of the proceedings has been sent to you. You will also recall that I handed you in person at Mysore on 7th October, 1943, a note on the requirements of this Government, among which was assistance from the Government of India in obtaining an electrolytic alkali plant.

I am to state in this connection that the present acute shortage of caustic soda in India has made it imperative to start the manufacture of this chemical in this country and His Highness' Government are anxious to establish the industry in the State as early as possible.

The assistance required from the Government of India is the grant of a permit for the importation of the necessary plant from America under the Lease/Lend arrangemnts or by securing special priorities. As an alternative, the Government of India may kindly see their way to make over to Mysore one of the electrolytic alkali plants ordered by them and expected to arrive in India very shortly. This arrangement will save time. The State has engineers and chemists with the requisite technical knowledge and skill to instal and operate the plant. The electric power required will be made available .

I am to add that there are a number of cases in whic

the Government of India has reimbursed new enterprises, started as measures of the war effort, to the extent of the difference between the pre-war and the present day price of the plant and equipment. His Highness' Government would ~~greatly appreciate~~ be glad if a like concession ~~is~~ could be shown in this case also.

I am to request a very early consideration of these requests.

(Yours sincerely)

21/11

R.W. Targett, Esq., I.C.S.
Director General of Supply.
Government of India,
Shah Jahan Road,
New Delhi.

Memo/No. D.6624-7

1. Copy of the above is forwarded with compliments to Mr. S.G.Sastry, with reference to his letter dated 1st November, 1943, with a request that the matter may be followed up by him also.

2. Copyof the above is forwarded with compliments to the Director of Industries and Commerce

3 Copy sent

3. Copy of the above is forwarded with compliments to the Secretary, Board of Industrial and Scientific Research.

27/11

4539.

S. SASTRY, B.A., M.Sc.(LOND).,
Director of Industries &
Commerce (Retired)
- . -

Sir Krishna Rao Road,
Basavanagudi, Bangalore City,
4th January 1944.

Sec 9-43-7

Dear Sir,

SUB: ELECTROLYTIC ALKALI.

During my last visit to Delhi I made enquiries about the electrolytic alkali plants which were expected by the Government of India from U.S.A., under the Lease-Lend terms. I was informed that the proposal of the Government of India was there and the above plants had been included in the list of equipment to be obtained from U.S.A., but for some reason or other the matter has not progressed much further. I formed the impression that there is no likelihood of the plant being received by the Government of India in the near future. Therefore, the Mysore scheme should be considered further without the expectation of obtaining the plant through the Government of India. Please let me know if I can be of further assistance to you to complete the scheme.

Thanking you for a line in reply,

I remain,
Yours sincerely,

S Sastry

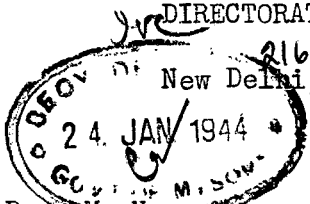
Charles E. Neronha, Esq., M.A.,
Secretary to the Government of Mysore,
Development Department,
BANGALORE.

4825.

D.O.No.DDG.III/8/43

DIRECTORATE GENERAL OF SUPPLY

New Delhi, 14th January, 1944



Dear Mr. Noronha,

I write to acknowledge with thanks receipt of your D.O.letter No.D.4423/I & C.9-43 dated 6th January, 1944, addressed to Targett and to state that the same has been forwarded to the Industries & Civil Supplies Department for their consideration who are now concerned in such cases.

Yours sincerely,

(Aftab Rai)

C.E.Noronha, Esq.,
Secretary to Government,
Development Department,
Mysore State, Bangalore.

Src 9-43-8

D.C. No. F-11-ID(6)/44.

Government of India.
Department of Industries and Civil Supplies.

15 APR 19

New Delhi, the 8th April 1944.

Electrolyte Alkali Plant.

Dear Mr. Noronha,

Will you please refer to the correspondence resting with Mr. Aftab Rai's D.O. No.DDC.III/8/43, dated 14th January 1944, on the above subject?

I regret to say that the Government of India are not at present in a position to approve the establishment of a Caustic Soda and Chlorine plant in your State.

The Indian Supply Mission is already negotiating in the U.S.A. for the import of 3 Caustic Soda plants and a number of difficulties have been raised by the U.S.A. authorities. I am afraid that if we now supported your application for yet another Caustic Soda plant, the result would be that our existing negotiations would be prejudiced without any material gain to yourselves. We shall, however, be very glad to reopen the matter as soon as the situation is clarified.

Yours sincerely,

(H.M. Patel).

C.E. Noronha, Esquire,
Secretary to the Government,
Development Department,
Mysore State,
BANGALORE.

Dc 9-43-9

D.O. No D 8312/Dc9-43-9

Dt 24.6.44 Sd by Mr C.A.N.

( )

Electrolyte Alkali Plant.

I am desired to refer to the correspondence ending with your D.O. letter No. F-11-ID(6)/44 dated 8/10th April 1944 on the above subject and to enquire whether it would now be possible to allow us an import licence for ~~by you, in supporting our application~~ which you say an import licence for a plant is readily appreciated, already negotiating. ~~I am to state that our need~~ in the matter is rather pressing as we have already acquainted you. We shall H.H's Govt will be grateful if you would be so kind as to use your good offices in securing for us one of the three plants for which the Indian Supply Mission are said to be negotiating.

(Y.D.) Dc 24/6

H.N. Patel Engr. TR 22/6/44

(Dev Sec)

D.O.F.19-CM(7)/44
Government of India
Department of Industries and Civil Supplies.

New Delhi, the 8th July, 1944.

Subject:- Electrolytic Chlorine plant.

Dear Mr. Noronha,

Will you kindly refer to your D.O. letter No.D 8312/IC9-43-8, dated the 24th June, 1944, on the above subject? You will be considered along with other applicants when the question of allotment of the plants is taken up, i.e., as soon as it is known for sure that the plants will be released to India.

Yours sincerely,

(T.C. Boyd)

C.E. Noronha, Esquire, M.A.,
Secretary to the Govt. of Mysore,
Development Department,
BANGALORE.

D 1118 Dte 9-43-11

9158

Dear ~~Sir~~, Mr. Landy,

Subt.: Electrolytic Alkali

I am desired to refer to my ~~Demi-~~ Confirmation ~~of~~ letter no. D. 44424-7, dated ~~1-7~~ 6.1.44 ~~forwarding to you~~ Covering a copy of the letter addressed to Mr. Target in the above subject, ~~I am~~ desired and to state that the Supply dept., of the Govt. of India have intimated in their letter dated 10.4.44 that the Indian Supply mission is negotiating in the U.S.A. for the import of 3 Caustic Soda plants, and ~~they have since informed that~~ Regarding claims ~~we~~ will be considered along with other applicants when the question of allotment of the plants is taken up, i.e., as soon as it is known

Extract from the proceedings of the Joint session of the Board of Scientific and Industrial Research (Central) & (Mysore) held on the 30th Novr.1943.

(Proceedings not yet approved by the Govt.of India.)

+++

X X X

Item.VI. Manufacture of Alkali.

In view of the demand for caustic soda by the soap and other chemical industries, Sir J.C.Ghosh recommended that manufacture of alkali may be taken up. In addition to the manufacture of bleaching powder, ferric and other chlorides, and organic chemicals, the chlorine obtained as a by-product could be utilised for conversion of benzene to chlorobenzene, leading to the production of phenol, of which there was a great shortage in the country. The Government of India were requested to release the benzene required for purposes of this investigation.

XXXXXXXXX

21/1/44

MR. FELTON
Mysore COMPANY) Incorporated
~~NEW YORK~~ BOSTON, U.S.A.

Require
(~~ENQUIRY FOR~~) CAPITAL EQUIPMENT (~~PROJECT~~) MANUFACTURING DAILY BY ELECTROLYTIC PROCESS SEVEN TO EIGHT TONS SOLID CAUSTIC SODA AND SIX TO SEVEN TONS CHLORINE (~~BY INSTALLING 240 MERCURY CELLS OR ALTERNATELY ANOTHER TYPE EFFICIENT DIAPHRAGM CELL~~) STOP TWO THIRDS CHLORINE TO BE COMPRESSED INTO CYLINDERS (~~AND~~) BALANCE CONVERTED INTO BLEACHING POWDER STOP (~~PROJECT~~) CONTEMPLATES USING BYEPRODUCT HYDROGEN FOR VEGETABLE OIL HARDENING FIFTY TONS DAILY AND ALSO SYNTHETIC HYDROCHLORIC ACID ONE TON DAILY STOP MAIN ITEMS EQUIPMENT REQUIRED as FOLLOWS ITEM 240 MERCURY CELLS OR OTHER EQUIVALENT EFFICIENT DIAPHRAGM CELLS ITEM MERCURY ARC RECTIFIER FOR CONVERSION ALTERNATING CURRENT TO DIRECT CURRENT ITEM VACCUM EVAPORATOR WITH ACCESSORIES ITEM CAUSTIC BOILER WITH ACCESSORIES ITEM CHLORINE COMPRESSOR UNIT WITH CYLINDERS ITEM BLEACHING POWDER PLANT ITEM COMPLETE VEGETABLE OIL HARDENING PLANT ITEM HYDROCHLORIC ACID SYNTHESIS PLANT ITEM MISCELLANEOUS AUXILIARIES LIKE SPECIAL PUMPS PIPES STOCTERA STOP ~~PREPARED~~ Could be LOCALLY FABRICATING CELLS IF LICENSED WORKING DRAWINGS GRAPHITE RODS AND ASBESTOS DIAPHRAGMS CAN BE SUPPLIED STOP SIMILARLY ~~PREPARED~~ Could also FABRICATE MAJOR PORTION VEGETABLE OIL HARDENING PLANT WITH WORKING DRAWINGS STOP CAN MANAGE LOCALLY ALL CEMENT CONCRETE WORKS ~~INCLUDE ALSO~~ STRUCTURAL STEEL WORK CASTIRON AND STEEL TANKS STONEWARE PIPES COMPONENTS DRAWINGS THUS SAVING ~~FOREIGN~~ EXCHANGE STOP KINDLY MAKE ENQUIRIES AND ~~INDICATE~~ CABLE POSSIBILITIES AND TIME REQUIRED ~~BY CABLE~~

50
~~AC~~ three phase 25 cycle 13200 volts / 11000

DEVSEC

117 0
Scott
Stevenson
29/10

Must may be sent. to
office for typing the
Cablegram as requested

28/10
4.20 PM.

Capt OB for
favour
compliance
and return

28/10/44

The cablegram
has been issued
to W/T 29/10/44

29/10/44

The Secretary

MR. FELTON

MYSORE (COMPANY) INCORPORATED

BOSTON, UNITED STATES OF AMERICA.

REQUIRE CAPITAL EQUIPMENT MANUFACTURING DAILY BY ELECTROLYTIC PROCESS SEVEN TO EIGHT TONS SOLID CAUSTIC SODA AND SIX TO SEVEN TONS CHLORINE STOP TWO THIRDS CHLORINE TO BE COMPRESSED INTO CYLINDERS BALANCE CONVERTED INTO BLEACHING POWDER STOP CONTEMPLATE USING HYDROGEN FOR VEGETABLE OIL HARDENING FIFTEEN TONS DAILY AND ALSO SYNTHETIC HYDROCHLORIC ACID ONE TON DAILY STOP MAIN ITEMS EQUIPMENT REQUIRED AS FOLLOWS ITEM 240 VOLTS CELLS OR OTHER EQUIVALENT EFFICIENT DIAPHRAGM CELLS ITEM MERCURY ARC RECTIFIER FOR CONVERSION ALTERNATING CURRENT THREEPHASE 25 CYCLES 13200/ 11000 VOLTS TO DIRECT CURRENT ITEM VACUUM EVAPORATOR WITH ACCESSORIES ITEM CAUSTIC FUSING POT WITH ACCESSORIES ITEM CHLORINE COMPRESSOR UNIT WITH CYLINDERS ITEM BLEACHING POWDER MAKING EQUIPMENT ITEM COMPLETE VEGETABLE OIL HARDENING PLANT ITEM HYDROCHLORIC ACID SYNTHESIS PLANT ITEM MISCELLANEOUS AUXILIARIES LIKE SPECIAL PUMPS PIPES ETC ETC STOP COULD ARRANGE FABRICATING COILS LOCALLY IF LICENSED WORKING DRAWINGS GRAPHITE ANODES AND ASBESTOS DIAPHRAGM CAN BE SUPPLIED STOP SIMILARLY COULD ALSO FABRICATE MAJOR PORTION VEGETABLE OIL HARDENING PLANT WITH WORKING DRAWINGS STOP CAN MANAGE LOCALLY ALL CEMENT CONCRETE WORKS STRUCTURAL STEEL WORK CASTINGS AND STEEL TANKS STONEWARE PIPES CONFORMING DRAWINGS THUS SAVING SHIPPING SPACE STOP KINDLY LAKE ENQUIRIES AND CABLE POSSIBILITIES AND TIME REQUIRED.

~~Dev Sec~~

~~DEVELOPMENT SECRETARY~~
Development Secretary

---

tns/4

For Secretary to Government,
Development Department.

Dft

9K. 9-43-13

D 2957

Dear Sir,

I am desired to forward a copy of the Cablegram embodying an Enquiry for the Electrolytic Alkali Plant - Resh. to Th. Felton for your information.

Yours faithfully,

for Dev. Secy.

T.S.
Please type one copy of the cable for me.

To.

B. Viswanath, Esq. B.E.
- Dy. Eng + Chem.
Bangalore.

2585
9c-29

INDIAN POSTS AND TELEGRAPHS DEPARTMENT.

FOR REVENUE &

From XF 1307

NOV 2 1944

No. 670

Dc 27/IV T (10/26)

No. 4534/31 Bastar in 30 cys Delhi

M. a. Sheerwasan, minister 21

Dr. Secy of industries

Mr. H.S.M. State of Mysore

Proceeding immediately

investigations electrolytic

alkali for development

Secretary George R Felton

DEWAN'S OFFICE
13. DEC. 1944
NO 2928
OFFICE OF THE MINISTER FOR PUBLIC WORKS
6 DEC. 1944
No. 4252

The Mysore Company

REPRESENTING
THE STATE OF MYSORE, INDIA
75 FEDERAL STREET
BOSTON, MASSACHUSETTS

LIBERTY 2109

November 1, 1944

My dear Krishna Rao:

SUBJECT: Electrolytic Alkali Plant

Your cablegram of October 28th arrived in this office the morning of October 30th, in which you outline certain specifications for a plant to make caustic soda and chlorine by electrolysis.

The information we require seems to be quite complete in this cablegram and we have taken immediate steps to investigate this project.

It happens that one of my personal friends is a partner in a large engineering company located here in Boston. For many years they have specialized in design and construction of hydro electric and steam power plants, paper factories and textile factories. They have built several alkali plants which are operating quite successfully.

Strangely enough they have recently completed estimates on a caustic soda plant for the Indian Supply Mission. When I called them on the phone to arrange for an interview he thought I was referring to that proposed plan which evidently is being considered for establishment in one of the States of British India.

The engineer who supervises all the alkali plants for their organization happens to be in California at the moment but is expected to return here some time this week. We will discuss the matter thoroughly at that time and complete estimates will be furnished you for:

1. Design of buildings.
2. Design and blueprints for machinery, equipment and piping installations for:

a. Caustic Soda
b. Chlorine
c. Bleaching Powder
d. Vegetable Oil Hardening
e. Synthetic Hydrochloric Acid

3. Schedule and cost of machinery and equipment.
4. Fee for an engineer to supervise installation of machinery and equipment and conduct first few weeks of actual operation.
5. Availability of machinery and equipment and estimated date of possible shipment.

Within the next week I will write again advising you as to when you may expect these estimates. We will do everything possible to expedite this matter.

We wish to thank you for the completeness of information which you furnished us in this cable. It permits us to proceed quickly and intelligently with the project without having to request more complete information.

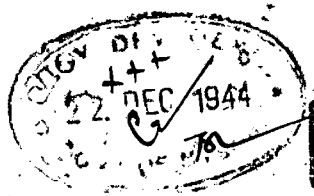
Up to the time of writing this letter I have not heard from you personally and would greatly appreciate knowing how you are progressing with your Post-War development plans. They are of great interest to me as you probably know. Also I would like to hear how things are going at Hindustan Aircraft, Ltd., as I understand some changes have been made since I left.

My best personal regards.

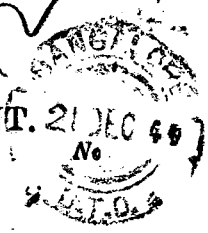
Sincerely,

GEF:EF

C. 8



INDIAN POSTS AND TELEGRAPHS DEPARTMENT.



Received here at ____ H. ____ M.

NLT NTL 17 29/21C BOSTONMASS 1E IRC DEVIE 54

NLT C E NORONHA SECRETARY DEVELOPMENT DEPARTMENT

STATE OF MYSORE BANGALORE

QUALIFIED ENGINEERS ASSEMBLING COMPLETE INFORMATION

REQUESTED ELECTROLYTIC ALKALI PLANT AIR MAILING

APPROXIMATELY JANUARY TWENTIETH STOP WORKING ON ALL

The sequence of entries at the beginning of this telegram is—class of telegram, time handed in serial number (in the case of foreign Telegrams only), office of origin, date, service instructions (if any), and number of words.

This form must accompany any inquiry respecting this telegram.

Eden Press, Calcutta—No. 146 (5173/B-125)—17-11-42—1,00,000. Bks.

C. 3

INDIAN POSTS AND TELEGRAPHS DEPARTMENT.

Received here at ____ H. ____ M.

OTHER PROJECTS YOU LISTED STOP EXPEDITE INFORMATION WE REQUESTED ON RAYON VENEER ELECTRICAL MOTORS AND EQUIPMENT STOP NO REMUNERATION DRAFT YET RECEIVED

MYSORE CO FELTON

The sequence of entries at the beginning of this telegram is—class of telegram, time handed in serial number (in the case of foreign Telegrams only), office of origin, date, service instructions (if any), and number of words.

This form must accompany any inquiry respecting this telegram.

Eden Press, Calcutta—No. 146 (5173/B-125)—17-11-42—1,00,000. Bks.

Routine Notes.

WD 07111—GPB—50,000—29-7-44

[To be used only for notes, requisitions, etc., not intended for permanent record.]

3758

Telegram 9 18/12 from Mr. G. C. Felton
re. A.S. re. Alkali Plant

Subd.
The Main file re. Electrolytic Alkali Plant has been
referred to Comm. D+P 13/12 (Dno 2926) (2891).
Re. Loan including the main file transmitted to Dev Secty 22/12
with Dno 3620.

Controller
Subd for perusal. He may be requested to
27/12 state what action has been taken by him to make pay-
ment of the remuneration to Mr Felton. To
Dev Secy) W/12/44

Yes
W/XII

FV 28/12

This may kindly refer
to Mr. J.V. for taking extracts
of this telegram in order re: Mr. Felton's
remuneration for further action & to
return this to me.

Extracts taken
2/1/45 FV
2/1

N.B.— *Should routine notes be written on small slips, the notes must be copied, or slips pasted on this form.*

C. F. 74.]

Routine Notes.

[To be used only for notes, requisitions, etc., not intended for permanent record.]

N.B.— Should routine notes be written on small slips, notes must be copied, or slips pasted on this form.

DM D 2848 (1)

To

George E. Fellers

Nepsne (Impan) Incorporated

Boston,

U.S.A

Sir,

Sub: Enquiry for the Electrolytic Alkali Plant-

I am directed to confirm the Cablegram — as per annexure, sent to you on 28.10.44.

Draft tabd. The file has been routed separately & directed

Bombay

30.X.44

for 30/10

for Dev Secy

30/10

Mr. C. E. NORONHA, M.A.,
Secretary to Government,
Development Department (Supplies)

GENERAL AND REVENUE SECRETARIAT,

Dated Bangalore, 25/1/45

D. O. No. D 4880

I am desired to enclose for your information an extract of cablegram from Mr. G.E. Felton (U.S.A).

Y.V.
L
24/1/45

H.F. Gourlie, Esq.,
General Manager,
Hindustan Aircraft Ltd., Bangalore.

Extract of Cablegram dated, 16th January 1945 from Mr. G.E.Felton.

STOP PLEASE INFORM GOURLIE INDIAN VISITOR LOCATED.

S. G. SASTRY, B.A., M.Sc. (LOND.)
DIRECTOR OF INDUSTRIES AND COMMERCE,
MYSORE
DIRECTOR OF SANDAL OIL FACTORY, MYSORE
(RETIRED)

Confidential

1. FEB. 1945

SIR KRISHNA RAO ROAD
BASAVANGUDI
BANGALORE CITY

1st Feb. 45.

Dear Mr. Noronha,

When we met at the Secretariat about a fortnight ago, and were discussing some aspects of the Electrolytic alkali industry, I asked if any proposals had been received from Col. Felton from New York. You were good enough to state that proposals from him were expected round about the 20th of January 1945. I shall be obliged if you can kindly let me know if any information has been received. If so, I shall be obliged for a copy of the same for further elaborating our scheme.

Thanking you in anticipation,

I remain,
Yours sincerely,

S Boorby

Charles E. Noronha, Esq., M.A.,
Secretary to the Government of H.H. the
Maharaja of Mysore, Development Department,
BANGALORE.

Immediate 4539

Dear Mr. Lawton,

Subject: Electrolytic Alkali Plant

With ref. to your letter of the 16th today and the above subject, I am directed to say that Mr. Zelka has cabled to say that the estimates would be sent by air mail on the 20th ultimo. They have not been received yet.

D 5202

9 2/2

Typing Section)

X X 1. By 11/2/45

Extract from letter dated the 28th December 1944 from Colonel George E. Felton, The Mysore Company, 75, Federal Street, Boston 10, Massachusetts, to the Dewan of Mysore, Bangalore.

** ** **

In a very short time complete estimates will be ready for the manufacture of alkali, chlorine, etc. I am working with one of our finest engineering companies in its preparation. They have built plants of this character previously and very sucessfully.

** ** **

9r 9-43-14 5195

C. F. No. 46] **GOVERNMENT OF MYSORE**

No. 1319/44-5
Encls. (one)

OFFICE OF the Commissioner of Economic Development & Planning, B'Lore.

Date 1st March 1945.

To

CHARLES E. NORONHA, ESQ., M.A.,
Secretary to Government,
Development Department,
Bangalore.

9r 301/44

Sir,

Subject: Electrolytic Alkali.

In inviting a kind reference to the Secretariat U.O. No.300/44-45 dated the 17th January 1945 and my remarks furnished thereon on 12th February 1945 with this office No.E.C.F.1128/44-45, I have the honour to enclose copy of a D.O. letter received from Mr. S.G. Sastry, on the above subject and to request that, pending settlement of the site of the proposed factory, early orders of Government may be kindly obtained in regard to the several concessions asked for by the proposed joint-stock company for the manufacture of Electrolytic Alkali.

The Board of Directors of the Mysore Paper Mills, who considered the question of granting a portion of land belonging to the Paper Mills for the said Company for the manufacture of Electrolytic Alkali, at their last meeting, thought it necessary to obtain full particulars regarding the Company for which the land is required before coming to a decision.

Mr. S.G. Sastry, one of the promoters of the said company who was addressed to in the matter by the Chairman, Mysore Paper Mills, Ltd., has furnished full details of the proposed company on 27-2-1945. I have also addressed the Chairman, Mysore Paper Mills, Ltd., this day to kindly arrive at a decision very early in view of the urgency of starting this important industry. I shall

P.T.O.

Letter No. dated the 27th February 1945 from Mr. S.G. Sastry, B.A., M.Sc.(Lond), Retired Director of Industries and Commerce, Basavanagudi, Bangalore to the Commissioner of Economic Development and Planning., Bangalore.

Sub: Electrolytic Alkali.

I beg to inform you that I have received a letter from the Chairman of the Mysore Paper Mills, Ltd., asking me to furnish some more information about the scheme for the manufacture of electrolytic alkali. I enclose herewith a copy of that letter together with my reply thereto, for your information and for your office files. Recently another letter has been submitted to you for the scheme being recommended to Government for final orders pending the settlement of the site of the factory whether at Bhadravati or elsewhere. It is a well-known policy of Government of Mysore to afford this facility of either granting free Government land or acquire the same if it is in private holding. Therefore, the scheme need not be delayed for the purpose of defining the exact site of the factory. It is our desire to put through the scheme as expeditiously as possible and I approach you for your help and co-operation.

Thanking you in anticipation,

"Copy"

Commissioner of
Economic Development & Planning.

MLB.

K.

m-9-43-15 5284

S. G. SASTRY, B.A., M.Sc. (LOND.)
DIRECTOR OF INDUSTRIES AND COMMERCE,
MYSORE
DIRECTOR OF SANDAL OIL FACTORY, MYSORE
(RETIRED)

SIR KRISHNA RAO ROAD
BASAVANGUDI
BANGALORE CITY

5. 3. 45.

Dear Mr. Noronha,

Sub: Electrolytic Alkali.

Col. Felton had cabled to say that he would airmail his proposals regarding the above scheme on 19th January. I shall be glad if you will kindly let me know whether any information has been received from him and if so, I shall be glad to received copies of the same for study and further action.

Thanking you in anticipation,

I remain,
Yours sincerely,

S Sastry

Charles E. Noronha, Esq., M.A.,
Secretary to Government,
Development Department,
Bangalore.

Dewan

Minister, P.W. & I.
with compliments

The Mysore Company

REPRESENTING

THE STATE OF MYSORE, INDIA

75 FEDERAL STREET
BOSTON, MASSACHUSETTS

LIBERTY 2109

CABLE ADDRESS
"MYSORE" BOSTON

BENTLEY'S SECOND PHRASE
CODE BOOK

January 16, 1945

OFFICE OF THE MINISTER
FOR PUBLIC WORKS
13 MAR. 1945
No. 6846

Mr. M. A. Sreenivasan
Minister of Revenue & Sericulture
State of Mysore
Bangalore, India

My dear Sreenivasan:

SUBJECT: Estimate for Caustic Soda and Chlorine Plant

This estimate is in answer to your cablegram of October 28th in which you requested estimates and information regarding a plant for the purpose of manufacturing seven to eight tons of Caustic Soda per day and six to seven tons of Chlorine per day.

This estimate also includes the necessary plant and equipment to compress the chlorine, hydrogenate oil, make bleaching powder and hydrochloric acid in the amounts requested.

Upon receipt of your cablegram we immediately canvassed the engineering companies who were qualified to design a plant of this type and who employed engineers who had had actual experience in constructing and operating this kind of plant.

We were successful in being able to locate a company who had had just this type of experience and who, at the same time, would be willing to devote the time necessary to work with us on this project. The company is Charles T. Main, Inc., 201 Devonshire Street, Boston. It has been established for 51 years and is composed principally of graduates of the Massachusetts Institute of Technology.

As we have previously remarked, all of our first grade engineering and chemical companies have more work ahead of them than they can accomplish in the next three years and it is not easy to persuade them to defer local work which they have on hand and for which they are being paid in favor of putting in time and making estimates for something which may develop in the future.

We have been successful with this project as well as with the rayon project in interesting engineers sufficiently to put in their time with us as they are impressed with the sincerity and responsibility of our intentions.

We have secured preliminary estimates of the costs which should enable your engineers to convert this information into a fairly accurate idea of just how much this plant would cost you ready for operation in India.

The estimates are as follows:

1.	Special equipment to be purchased in the United States.....	$335,000.00
2.	Ocean transportation.....	29,345.00
3.	Piping, valves, etc. (approx.)....	30,000.00
4.	Wiring and electrical supplies (approx.).....	10,000.00
5.	Engineering.....	42,600.00
		446,945.00

It must be noted that these figures do not include the cost of buildings or the necessary labor for installation of the machinery and equipment.

The above figures give you the complete cost of design of plant with all plans and all machinery and equipment landed at Madras.

An explanation of the items mentioned in the above estimates follow in numerical order:

1. All of the equipment on which quotations were received is manufactured by reputable companies and is tried and tested. It is all equipment of known performance installed in our largest industries.

The possible manufacture of the electrolytic cells in India was given careful consideration. It was finally determined that the most satisfactory method would be to manufacture them in the U.S.A.

Savings in shipping costs and other factors were duly considered but other factors such as the cost of securing the rights to manufacture, the possibility of unsatisfactory operation, etc., caused us to advise purchasing them here.

You may possibly have certain components of the electrical equipment in stock such as rectifiers. If so, you would not need to order them, of course. A substantial reduction in this estimate would be effected if it were decided not to manufacture hydrochloric acid or hydrogenate vegetable oil.

These figures do not include the cost of a steam plant which it is assumed can be obtained in India. It is a very simple affair only requiring 150 lbs. pressure.

Also shown on the plan is a drum making plant which is customary to include in plans for U.S. operated plants. It was pointed out that it would become a natural function of your steel plant so the cost of this plant has been omitted.

Another item which has been omitted is the cost of the required spur track, switches and other equipment. I have assumed your railroad company is able to furnish these supplies.

2. The approximate figure of $30,000.00 for ocean transportation in our opinion is higher than the cost will be at the time the equipment is shipped. At present shipping rates and insurance are very high and it is very probable these will be decreased before these items are shipped. It may also develop that some of the supplies may be procured in India which will further decrease this figure.

3 & 4. As you can understand, it is impossible to furnish at this early stage a complete itemized list of all piping and supplies as well as electrical supplies. They are all detailed at the time of drawing up the complete plans and specifications of the plant.

If it is decided to proceed with the entire project we would suggest that this entire schedule be submitted to you after detailed plans are drawn but before purchasing here as there may be many items procurable in India of Indian manufacture and most certainly you would not wish to purchase supplies or equipment here with the added shipping costs if it was procurable in India.

5. Charles T. Main, Inc., have quoted a figure of $42,600 which is their estimate of the engineering work required for the complete plant. This figure will vary somewhat depending upon the services required of them.

The last page of their letter details the services which they propose to furnish.

Inasmuch as the buildings necessary are to be of simple construction, single story, about twelve feet clear height, with corrugated roofing and siding we would be inclined to think it advisable to design the buildings locally and save several thousands of dollars.

It would be possible for them to furnish the dimensions required and knowing the sizes of steel you roll at Bhadravati you could design the buildings accordingly. The floors would all be of concrete construction and if you knew the loadings you could design and engineer them just as well as having it done here and save the difference.

It would be our advice to allow us to employ them on a per diem basis rather than a fixed fee. It has been my personal experience that when a fixed price is demanded the engineers always figure high enough to amply cover the job and then usually add about 15% for contingencies.

Inasmuch as I am to work closely with them I believe I could supervise the project carefully enough to save money by employing the method as suggested above.

At our request the engineers have quoted a fee for a qualified engineer to supervise the installation of all equipment and to conduct the initial operation of the plant. To us this seems quite necessary to ensure proper functioning of the plant and adequate training of personnel. This arrangement could continue until you were completely satisfied with the operation of the plant and were ready to take over its entire operation yourselves.

All estimates given are intentionally on the high side and are believed to be adequate to cover the entire cost.

We believe that several thousands of dollars can be saved by careful buying and by following the entire project from start to finish. This we are prepared to do.

The Mysore Company receives its compensation from the State of Mysore and is concerned solely with protecting your interests and saving money wherever possible. You may be assured this will always be our attitude and will govern our actions.

If this project can, in any way, be considered as helpful to the war effort it would be most desirable as a certification of this from India would, I am quite sure, enable us to secure a good priority from our War Production Board to assist in procuring the equipment and expediting its manufacture. If it is being considered strictly as a post war project the above suggestion can be disregarded.

The deliveries mentioned by the engineers are the statements of the manufacturers. In our opinion it would be reasonable to expect complete delivery in from nine to ten months from date of placing order.

The plant layout together with the explanatory letter will, I hope, give you the information which you requested and in sufficient detail to be satisfactory.

It is very helpful representing a State. For the last ten years many Indian promoters, capitalists and other pseudo-organizers have requested all kinds of estimates from American engineering companies. These have all been furnished willingly and sincerely. Very few of the proposed projects, however, have ever materialized and now the majority of the engineering companies are quite skeptical about spending more time and money on preparing estimates, particularly when they have so much work in advance. This particular company of Charles T. Main had already given estimates on three different Indian projects costing them over $10,000 and have never heard from any of them.

As soon as you have had an opportunity to digest this estimate and report you will, no doubt, have questions which will need further investigation. We will be glad to investigate any suggestions or revisions which may develop from this report.

Sincerely,

George E. Felton

GEF:EF
Enc.

...ENOIT
...BRYAN
...A. MONCRIEFF
W. M. HALL

CHAS. T. MAIN, INC.
ARCHITECTS — ENGINEERS
201 DEVONSHIRE STREET
BOSTON, 10, MASS.

INDUSTRIAL PLANTS
TEXTILE MILLS
PAPER MILLS
STEAM POWER
WATER POWER
FOUNDATIONS
VALUATIONS

CABLE ADDRESS
CHASMAIN, BOSTON

January 14, 1945

Mysore Company
75 Federal Street
Boston, Mass.

- Attention of Mr. G. E. Felton -

Gentlemen:

Conforming to recent discussions we have prepared preliminary estimates and a sketch (Plan No. 1) to illustrate the general character of a Chlorine Manufacturing Plant with a nominal capacity of 14,000 lb of chlorine per 24 hour day.

I. The basis of all operations is that of continuous production, 24 hours daily, and all quantities except for hydrochloric acid are based accordingly. The electrolytic chlorine process has usually been found best adapted for continuous production and on this account the subsidiary operations are set up on a similar basis. It would be possible, for instance to operate the vegetable oil hardening department on a single ten hour shift, but to obtain the 30,000 lb production the plant investment would have to be made much larger.

II. The normal output per 24 hour day is expected to be about:

10,000 lb liquefied chlorine, ready for shipment in steel cylinders, containing 100 lb each.

10,000 lb of bleaching powder, (35% available chlorine).

2,000 lb of liquid hydrochloric acid, (24% concentration). (8 hour production, every second day)

30,000 lb hydrogenated vegetable oil, hardened to shortening consistency.

15,000 lb fused caustic soda, (in 100 lb drums).

III. The normal requirements of materials and utilities per 24 hour day is expect to be about:

25,000 lb common salt (sodium chloride) coarse commercial grade.

6,000 lb calcined lime (calcium oxide) commercial grade.

30,000 lb of refined vegetable oil (edible grade) peanut, cottonseed or sesame seed.

10,000 gals. soft fresh water (total hardness as salts of calcium or magnesium not over 100 parts per million.

750,000 to 850,000 gallons (maximum demand 600 GPM) of cooling water at 80°F or cooler. Hardness immaterial, could be recooled, if necessary.

1,500 gals. of fuel oil, heavy grade, about 145,000 BTU per gallon, (or an equivalent amount of coal fuel).

1,500 lb concentrated sulphuric acid, commercial, (specific gravity 1.834).

Five lb nickel catalyst, (for hydrogenation of vegetable oils

25,000 kwh electric energy, (average demand 1,000 kw).

IV. The principal departments of the proposed plant are listed below.

(a) Salt Storage. - In a single story building, with floor at same level as railroad cars, and storage capacity for fourteen operating days. This building should be capable of sustaining a floor load of at least 250 lb per sq ft and should be sufficiently weather tight to prevent the entrance of moisture.

(b) Brine Department. - A single story building containing twelve (12) tanks, preferably of steel plate, which will be devoted to the following purposes:

Two as saturating tanks for brine -	12,500	gal.	capacity
Two for purifying brine - - - - - -	12,500	"	"
Two for brine recovered from cell room- - - - - - - - - - - - - - - -	12,500	"	"
One for mixing recovered brine with fresh hydrochloric acid to neutralization- - - - - - - - - - - - - -	10,000	"	"
One "glass-lined" for storage of fresh hydrochloric acid - - - - -	5,000	"	"
Four for storage of mixing neutralized and new brine for gravity feed to cell rooms - - - - - - - - - -	12,500	"	"

In addition to the tankage, transfer and mixing pumps, and filter press equipment will be necessary as well as piping, meters and control equipment.

(c) Electrolytic Cell Rooms. - We suggest the consideration of two separate one-story buildings, each containing 76 electrolytic cells similar to the KML type as developed

by the Allen Electronic Cell Corporation. Each cell room would operate as a unit, with normally 72 cells in operation, arranged in four rows of 18 each, an extra cell being provided at the end of each row for standby duty. Each cell group would be served by a series electrical circuit of 1500 amperes normal current, total voltage for 72 cells 250 volts, direct current. This current would be provided by a 400 kw electronic rectifier set up in an adjacent section of the building, together with transformers for utilizing 13,200 (or 11,000) voltage energy from incomimg 3 phase, 25 cycle transmission line. Arrangement of the cell buildings proposed is such that any cell could be removed for maintenance purposes without interruption to process, by use of a hand operated overhead crane. Ample aisle space for access to all cells is provided. The gravity supply of brine to each cell row from storage tanks in Brine Department would be controlled by a float valve so that a constant level in each cell is maintained. The effluent from cells, which would normally contain about nine per cent caustic soda plus thirteen per cent sodium chloride, would be collected in wrought iron pipes laid above the floor under each out-board end of cell rows. The columns supporting the cranes and roof structure would be located at in-board ends of cell-rows and on these same columns the series electrical conductors would be supported, together with the hydrogen-collecting line, the wet chlorine gas collecting line, and the brine distributing line. The effluent from cells would be collected in a steel tank under the floor of the building, from which it would be transferred by a float controlled pump to the salt-caustic storage tanks in the evaporator building. Each of these cell rooms would be an independent unit, so that if it were desired to operate with a continuous daily production of about 7,000 lb of chlorine it would be possible to do so with all other production at 50% of the rates originally specified.

(d) Evaporator and Chlorine Building. - This one-story building is proposed with a floor at the same level as floor of railroad cars by which outgoing liquid chlorine and fused caustic would be shipped. The partition shown on the sketch would divide the operating areas into the chlorine-handling section, and evaporator section for the production of fused caustic soda. Effluent from salt-caustic storage tanks would be pumped to a two-effect vacuum evaporator, where the concentration of caustic soda would be increased from about nine per cent to about fifty per cent and at the same time sodium chloride would be partially crystallized and recovered, and the soluble sodium chloride separated, for return to the recovered brine tank in the Brine Department. The effluent from the evaporators (fifty per cent caustic soda) would be distributed to a series of direct oil-fired caustic pots where the remaining moisture would be evaporated and the solid caustic melted so that it could be run into steel drums for shipping. Storage space for accumulation of about one week's production of caustic is provided immediately adjacent to shipping platform.

In the chlorine handling section a main ceramic supply pipe carrying all collected wet chlorine gas from cell rooms would be connected to chlorine cooling and drying towers, the drying being accomplished by passing chlorine gas upward through concentrated sulphuric acid. About sixty-five per cent of the cooled and dried chlorine gas would be compressed, by a centrifugal type compressor, to approximately 30 psi and conducted to a Freon-cooled direct-expansion liquefying condenser, maintained at some temperature around 0°F or sufficiently low to insure liquefying chlorine at this pressure. Artificial refrigeration would be produced by motor-driven Freon compressors, located in an exterior section of this building. The discharge of liquid chlorine from the condenser would be stored in a receiver, from which manifold connections for filling the steel cylinders used for shipment would be provided. A small proportion of chlorine gas, around ten per cent, is usually non-condensible, without excessive investment in refrigerating equipment. This non-condensible portion would be utilized to supplement the supply to bleaching powder plant.

We have assumed that as 100 cylinders represent a normal day's production of chlorine, it might be necessary to purchase an initial lot equivalent to about 10 days' supply (that is, 1,000 cylinders) to allow for those which are in customers' plants or in transit. Of the 14,000 lb production of chlorine, it is expected that about 10,000 lb would be liquefied, the balance, after having been cooled and dried, being conducted by commercial steel piping to the Bleaching Powder Department, with a small proportion diverted to Synthetic Hydrochloric Acid Department.

(e) Bleaching Powder Department. - We have assumed that the common practice of forming bleaching powder by exposing pulverized hydrated lime (calcium hydroxide) to chlorine gas in large chambers will be most applicable for the size of plant contemplated. About 3600 lb of chlorine per day would be utilized in this department, and would be introduced into the various chambers by fans provided to circulate the chlorine from one chamber to the next in series. Any unused chlorine escaping from the last chamber would be absorbed in a form of spray tower in which a solution of calcium hydroxide would be circulated. There might be some market for the effluent from this tower, as bleach liquor (calcium hypochlorite). Space has been provided at one end of the chamber section for storage of calcined lime and hydrating equipment. The pulverized hydrated lime would be distributed from the hydrator by screw conveyors, to reach the several inlet ports on top of the chlorine absorbing chambers. After the desired absorption of chlorine by the hydrated lime had been effected, the bleaching powder would be shoveled from openings in the cells and packed into cartons or such receptacles as are desired. The packing and shipping room is located at the opposite end of the Bleaching Powder Plant from the lime storage.

(f) Hydrogen Handling Department. - The hydrogen from the electrolytic cell rooms would be collected by a suction fan and delivered at a low pressure to a hydrogen-holder which would serve as a reservoir for gas, required for both synthetic hydrochloric acid and hydrogenation of vegetable oils. For the production of 2,000 lb of synthetic acid about 50 lb of hydrogen would be required, and for production of 30,000 lb of hydrogenated oils about 125 lb of hydrogen would be required. As the normal hydrogen production of the 144 operating electrolytic cells would be around 400 lb per day about 200 lb per day would normally be wasted to atmosphere.

(g) The synthetic hydrochloric acid plant would contain gas burning drum, ceramic lined cooling tower, recirculating pumps and absorber tower. A supply of cooling water is required to take up the heat liberated in formation of hydrochloric acid from synthesis of two gases (hydrogen and chlorine). It would be preferable to provide 1500 lb of soft, fresh water necessary to absorb the hydrochloric acid gas to form the 24% solution of acid which is to be the end product.

A little over 400 lb of chlorine would be required for the manufacture of this acid which will be diverted from the chlorine liquefying department after the gas from cells have been cooled and dried.

(h) Vegetable Oil-Hardening Plant. - This building is shown with a first floor level with car floors by which vegetable oils would be received and shipped. A second story, about 16 ft above, will be necessary for access to certain tanks and other equipment. Storage facilities are indicated at one end of the railroad platform, the space for storage of finished and hardened oil being at the opposite end of building.

The hardening processes would consist of heating the vegetable oil to the proper temperature and admitting hydrogen gas at a pressure of about 300 psi, in the presence of nickel catalyst, the whole process being mechanically agitated. This will be batch operation and equipment is predicated on 10,000 lb of oil per batch. It will be entirely feasible to complete three such batches in a 24 hour day.

After hydrogenating, the oil is conducted to clarifying and vacuum-deodorizing processes for purification, vacuum being obtained by means of steam-jet eductors. After these processes the hardened material is washed with very weak caustic to remove the small amount of fatty acid which tends to

form, and is then cooled and "grained" for the product ordinarily used by consumers. We have assumed that the product you desire is that ordinarily known as "vegetable ghee" or "vanaspati."

(i) Supplementary Buildings. - In addition to previously described buildings we have indicated a boiler plant for the production of steam at 150 psi, with a land area suitabe for fuel storage, also served by railroad facilities.

There has also been indicated a building which might be devoted to office and clerical work, using a separate section for general repair and maintenance shops, and possible for the production of light gauge steel drums in which fused caustic and hardened oils could be shipped.

Estimates have not been made of building construction, steel tanks, rail facilities, common steel piping, nor other facilities which we understand can be provided by your organization. Preliminary proposals for items mentioned in your cable inquiry have been obtained, and are tabulated on following pages. Delivery periods are approximate time required for manufacturo, after priority assignments (AA-3 or better) and export clearances have been obtained, and satisfactory terms of payment arranged. In general, manufacturers would require a cash deposit, of about 50%, at time of placing order, balance covered by an irrevocable letter of credit on deposit in an American bank, payable on presentation of sight draft bill of lading showing shipment from manufacturer's plant. Prices quoted include freight allowed alongside steamer at New York, and we have estimated ocean freight and marine insurance to Madras.

Limitation of time has precluded investigation of obtaining manufacturing rights for parts of the chemical equipment, and in this connection it is our impression that, for the comparatively limited amount of fabricated equipment involved in this instance, very little, if any saving in investment would be effected; and very probably a division of responsibility as well as delay in getting plant into production would result by so doing.

TABULATION OF PROPOSALS

Item	Description	Delivery Period	Approximate Price F.A.S., N.Y.	Estimates Ocean Freight and Insurance to Madras, India
1. -	152 KML Electrolytic Cells	20 weeks	$53,200	$6,800
2a.-	Two 400 kw Rectifiers 13.2 kv to 250 v d-c	6 months	$38,000	$2,100
b.-	One 225 kva substation 13.2 kv to 440 v a-c	20 weeks	$ 7,500	$ 470
3. -	Vacuum Evaporator Equipment and Caustic Fusion Pots	6 to 8 months	$70,700	$6,500
4. -	Chlorine Drying and Cooling Towers	4 months	$22,000	$ 200
5. -	Chlorine Compressor Brine & Caustic Pumps	5 months	$ 3,500	$ 225
6. -	Chlorine Condenser and Refrigeration Machinery	4 months	$ 5,040	$ 325
7. -	Chlorine Cylinders 1,000	10 weeks	$21,000	$2,100
8. -	Bleaching Mfg. Equipment-conveyors etc.	5 months	$24,840	$1,500
9. -	Vegetable Oil Hardening Equipment with Hydrogen Handling Plant	4 months	$50,750	$4,900
10. -	Synthetic Hydrochloric Acid Mfg. Equipment	4 months	$ 9,855	$ 825
11. -	Special piping, controls and misc. items	4 months	$12,000	$1,800
12. -	Water Softening Equipment	2 months	$12,350	$1,600

It is our understanding that preparation of applications and negotiations for priorities and export clearances would not be included in our assignment of work.

We have estimated the engineering time required to execute the following work:

1. Develop preliminary design
2. Obtain accurate data from manufacturers
3. Computations and final designs
4. Make equipment layout drawings and flow diagrams -about 20 sheets
5. Make construction drawings for buildings - about 60 sheets
6. Write specifications for construction and assembly of entire plant,

and believe that these items can be completed in 100 days after authorization to proceed and satisfactory financial arrangements are received.

The charge for engineering services for the above items would be approximately $42,600, depending upon the time required to obtain working data.

The charge for services of a man competent to direct the construction of the plant would be about $1200 per month, plus travel and expenses while out of this country.

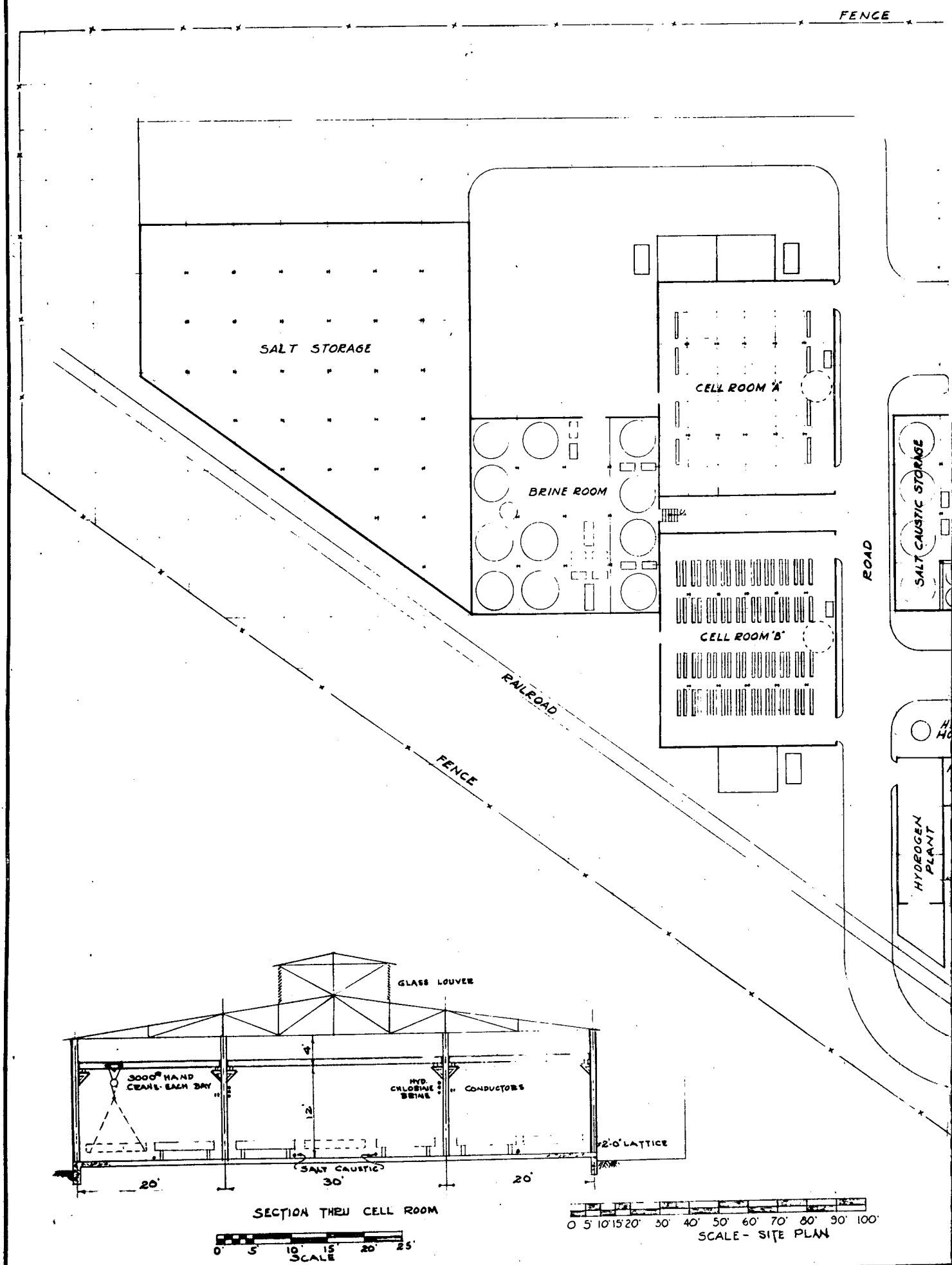
We will await with interest advice as to opportunity to serve you further in this connection.

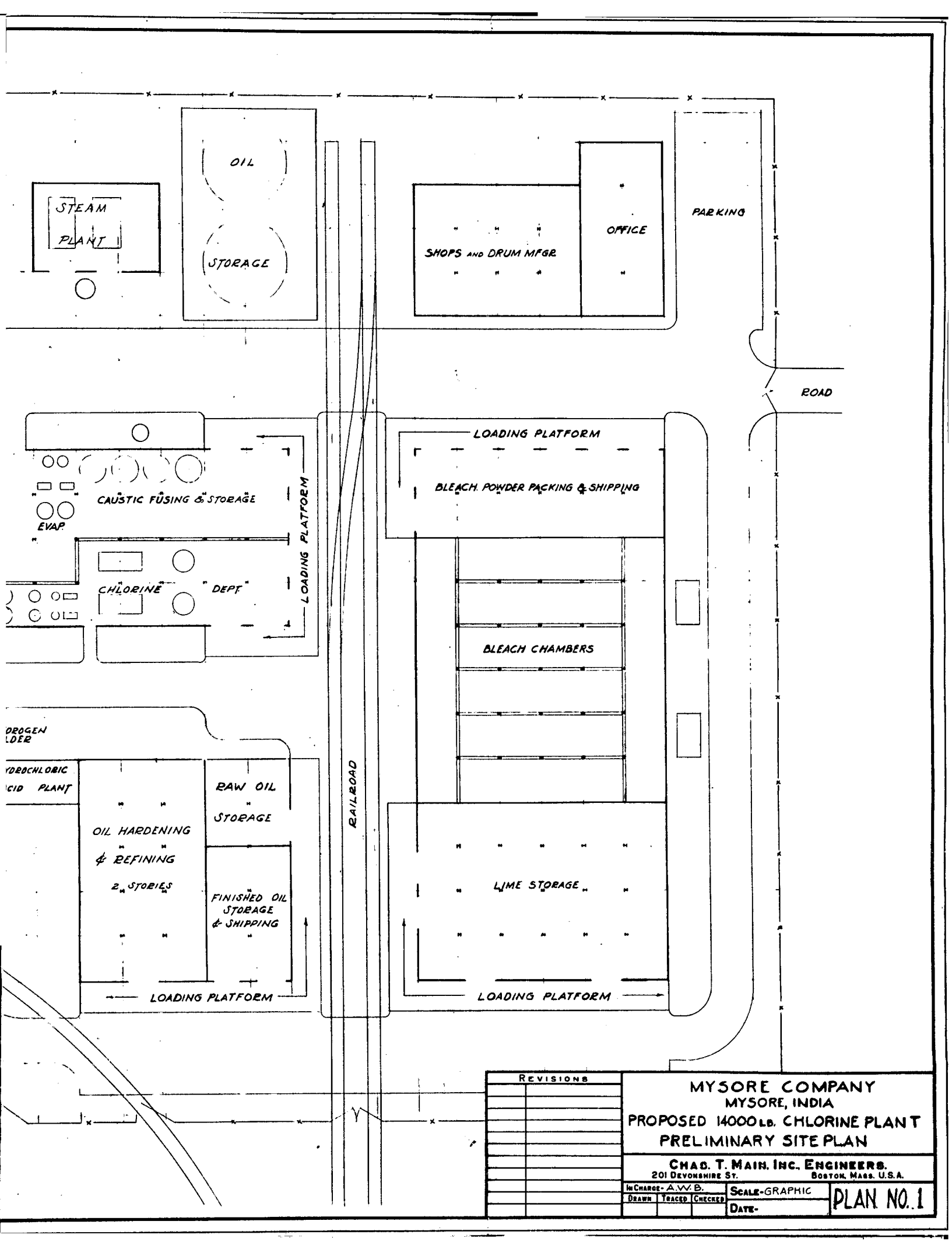
Very truly yours,

CHAS. T. MAIN, INC.

By

A. W. Benoit


FENCE
SALT STORAGE
CELL ROOM 'A'
BRINE ROOM
CELL ROOM 'B'
SALT CAUSTIC STORAGE
ROAD
RAILROAD
FENCE
HYDROGEN PLANT
GLASS LOUVER
3000# HAND CRANE- EACH BAY
HYD. CHLORIDE BRINE
CONDUCTORS
12'
2'-0" LATTICE
SALT CAUSTIC
20'
30'
20'
SECTION THRU CELL ROOM
0' 5' 10' 15' 20' 25'
SCALE
0 5' 10' 15' 20' 30' 40' 50' 60' 70' 80' 90' 100'
SCALE - SITE PLAN



REVISIONS	

MYSORE COMPANY
MYSORE, INDIA
PROPOSED 14000 Lb. CHLORINE PLANT
PRELIMINARY SITE PLAN

CHAS. T. MAIN, INC. ENGINEERS.
201 DEVONSHIRE ST. BOSTON, MASS. U.S.A.

IN CHARGE - A.W.B.			SCALE - GRAPHIC	PLAN NO. 1
DRAWN	TRACED	CHECKED	DATE -	

9n 9-45-16
T. 1578 (Encl: 2)

9n HSR 8104

1k

The Mysore Company

REPRESENTING

THE STATE OF MYSORE, INDIA

CABLE ADDRESS
"MYSORE" BOSTON

75 FEDERAL STREET
BOSTON, MASSACHUSETTS

BENTLEY'S SECOND PHRASE
CODE BOOK

LIBERTY 2109

for ack with thanks & regards

May 8, 1945

Ce 26/6

Dear Sreenivasan

My dear Sreenivasan:

SUBJECT: Alkali Plant using Vorce Cells

5238

1190

29/6

For your consideration we are enclosing an estimate as prepared by the Westvaco Chlorine Products Corporation using Vorce Cells.

Also is enclosed a letter which we wrote recently to Mr. R. D. Char who is at present in New York City.

I have called at the New York office of the Chemical Construction Company several times in connection with having them prepare an estimate for us using Hooker Cells.

This estimate will be ready for mailing to you within the next ten days or two weeks.

Sincerely,

GEF:EF
Encs.

COPY

May 1, 1945

Mr. R. D. Char
Hotel New Yorker
New York, New York

Dear Mr. Char:

While I was contacting various companies to secure estimates on the Alkali plant I learned that Mr. Ayerst, Engineer of the Westvaco Chlorine Products Corporation was in India and expected home soon. Subsequently I was advised that Mr. Ayerst had returned to this Country so I called him on the phone to request that his Company prepare an estimate for us based on the use of Vorce Cells.

He informed me at that time that Dr. Ramaswamy had already been in to see him and had requested him to prepare an estimate for the same purpose.

Inasmuch as Dr. Ramaswamy had taken the initiative on this matter I did not feel like interfering with his efforts. On my last trip to New York I called at the office of the Westvaco Chlorine Products Corporation and talked with Mr. Ayerst and asked him to send me a copy of the estimate which he was preparing for Dr. Ramaswamy Enclosed is a copy of this estimate for your information.

As I mentioned in a previous letter, the Chemical Construction Company is preparing an estimate based on the use of Hooker Cells. I talked with them on the phone yesterday and it is expected to be ready in about ten days. I will immediately send you a copy of this estimate as soon as I receive it.

I am also enclosing a copy of a sheet showing the Allen Moore Cell maintenance cost for your information.

Would you be so kind as to advise me about when you expect to depart for India.

Sincerely,

THE MYSORE COMPANY

G. E. Felton

GEF.EF
Enc.

D 482

7/16/7

Dear Sir,

Alkali plant using Vorce cells

I am desired to acknowledge with thanks the receipt of your letter dated 8/3/17 on the above subject.

Yours

Mr. S. L. Felton
75 Federal Street
Boston, Massachusetts

7/7/17

7/7.

T. 70 Sec 1

Dw 507

MWA

C. 1617

17/7

494

The Mysore Company

REPRESENTING

THE STATE OF MYSORE, INDIA

CABLE ADDRESS
"MYSORE" BOSTON

75 FEDERAL STREET
BOSTON, MASSACHUSETTS

LIBERTY 2109

BENTLEY'S SECOND PHRASE
CODE BOOK

April 18, 1945

My dear Sreenivasan:

As I mentioned to you in my previous letters I was securing other estimates on the Alkali and Chlorine plant using various type cells.

The enclosed estimate is from the James Russell Engineering Works, Inc., Boston, Massachusetts and is based on the use of the KML Allen Moore Cell.

Other estimates will be ready very shortly using Vorce Cells and Hooker Cells.

Based on my conversations and correspondence with Mr. R. D. Char lately I find certain modifications in the estimates will be necessary. I am, however, forwarding this in its present form so that you may have the opportunity to study it and communicate with me regarding any additional information which you might require.

43
2817

According to a letter received today from Mr. Char you wish to consider only a commercial Caustic Soda plant with salt purification. The chlorine to be washed, dried and bottled in steel cylinders or alternatively to be converted to Calcium Hypochlorite or "Perchloron" which is its trade name. He states that later on you may take up the hydrogenation plant as a separate project.

I am also procuring complete information regarding the efficiency of the three types of cells so that you will be in possession of complete information to make your decision.

As I wrote previously, Dr. Ramaswamy will visit Alkali plants and will talk with Chemical Engineers who are designing these plants in order to be fully acquainted with their various efficiencies.

The PROPOSAL is their standard form which may be subject to some variations or modifications depending upon your desires in this respect.

Sincerely,

GEF:EF
Enc.

BRINE ROOM

ITEM		PRICE	WEIGHT
1.1	1 - Filter Press	$1,501.00	9,750
1.2	Filter press pump	475.00	800
1.3	2 - Brine pumps	398.00	890
1.4	Electric wire, Switches, breakers, etc.	420.00	2,000
1.5	Air compressor	570.00	1,250
		$3,364.00	14,690

To be furnished by customer on our specifications

1.1	2 Brine saturators	2,428.00
1.2	1 Return brine tank	1,189.00
1.3	Complete pipe & fittings, valve, etc.	1,295.00
1.4	Soda Ash Tank	303.00
1.5	8 Concrete brine tanks	
		$5,215.00

CELL ROOM

ITEM		PRICE	WEIGHT
2.1	1 Head Tank	147.00	700
2.2	152 KML Cells	45,600.00	183,000
2.3	2 Cranes	1,155.00	4,850
2.4	Copper bus bar	275.00	1,152
2.5	Ceramic Pipe	1,470.00	4,398
2.6	Steel Pipe	892.00	11,303
2.7	Wiring, switches, etc.	241.00	950
		$49,780.00	206,353

EVAPORATOR ROOM

ITEM		PRICE	WEIGHT
3.1	Double effect evaporator		
3.2	2 - Salt separators		
3.3	1 - Barometric condenser		
3.4	1 - Two stage steam jet air ejector		
3.5	Vapor and tail pipes		
3.6	1 - Condensate pump	$46,200.00	154,336
3.7	1 - Cochrane drainer		
3.8	Liquor piping		
3.9	Condensate & vent piping		
3.10	Supports		
3.11	4 Motors 3 HP	462.00	600
3.12	2 Auxiliary pumps	377.00	800.00
3.13	1 Sweetland filter press	8,707.00	28,100
3.14	1 Filter press pump	476.00	800
3.15	1 Hoist with trolley	776.00	1,300
3.16	Wire, starters, switches, breakers, etc.	525.00	2,000
		$57,523.00	187,936

Material furnished by customer on our specifications.

3.1	Steel pipe, fittings, valves, etc.	$ 1,450.00
3.2	Sump tank	401.00
3.3	2 Caustic coolers	2,766.00
3.4	2 Caustic storage tanks	3,576.00
3.5	2 Cell liquor storage tanks	7,094.00
3.6	I Beam for hoist & trolley	100.00
		$15,387.00

SOLID CAUSTIC

ITEM		PRICE	WEIGHT
4.1	5 Caustic Melting Pots	$9,450.00	127,500
4.2	1- 15 Ton Hoist	656.00	1,222
4.3	1 - Trolley	479.00	925.0
4.4	1 - Caustic flaker & accessories	2,730.00	2,500
4.5	1 - Molten caustic pump	262.00	325
		$13,577.00	132,472

Materials furnished by customer on our specifications.

4.1	Steel piping, valves, cocks, fittings, etc.	147.00
4.2	5 - furnace grates & doors	787.00
4.3	5 - furnace rings	115.00
4.4	Ventilators, Pot tops, etc.	1,985.00
4.5	I Beam for trolley	240.00
4.6	Fire brick for pot furnaces	8,000.00
4.7	Stack for caustic pots	5,000.00
		$16,274.00

LIQUID CHLORINE DEPT.

ITEM		PRICE	WEIGHT
5.1	3 Chlorine coolers	$4,252.00	5,000
5.2	1-Ceramic dehydrator	945.00	2,050
5.3	1,000 lbs. 2" Berl saddles	173.00	1,050
5.4	2 - Nash pumps	3,712.00	3,710
5.5	3 - Chlorine condensers	1,050.00	2,500
5.6	1 - Chlorine receiver	577.00	1,100
5.7	Cooler refrigeration system	2,362.00	3,100
5.8	Condenser refrigeration system	6,930.00	17,125
5.9	2 - Circula ting pumps	472.00	900
5.10	2 - Auxiliary pumps	399.00	800
5.11	1 - Air compressor	570.00	1,250
5.12	Chlorine cylinders ~~(100x1ton)~~ 500-150 lbs. with valves & 100 - 2,000 lb. with valves	32,218.00	95,550
5.13	1 Sniff disposal unit	1,313.00	3,800.
5.14	Wiring, switches, breakers, etc.	577.00	500
		$55,550.00	138,435
	Materials furnished by customer on our specifications.		
5.1	1 Steel drying tower	448.00	
5.2	2 - Acid storage tanks	802.00	
5.3	1 - Acid cooler	199.00	
5.4	3 - Chlorine Storage tanks	6,479.00	
5.5	Steel pipe, fittings, valves, cocks, etc.	446.00	
5.6	Insulating material	1,425.00	
		$9,799.00	

HYDROCHLORIC ACID

ITEM		PRICE	WEIGHT
	Comes as a unit and includes following parts:		
6.1	Hydrogen Chlorine burner		
6.2	Burner drum		
6.3	Cooling tower		
6.4	Absorber tower		
6.5	Pump	$17,824.00	49,200
6.6	Fan		
6.7	Storage tank		
6.8	Fittings which combine above parts		
6.9	Nash pump for hydrogen	554.00	700
6.10	Control equipment	2,500.00	900
6.11	Ceramic pipe & valves	1,155.00	3,500
6.12	Berl saddles 500 lbs	87.00	550
6.13	Circulating pump for scrubber	104.00	75
6.14	Electrical equipment	[illegible],262.00	350
		$22,486.00	55,275

Material furnished by customer on our specifications.

6.1	Steel scrubbing tower for Hydrogen	448.00
6.2	Hydrogen dryer	465.00
		$913.00

DRUM SHOP

ITEM		PRICE	WEIGHT
8.1	Power squaring shears	$895.00	
8.2	1-Folder & Brake	165.00	
8.3	1-Single clip roll former	164.00	
8.4	1-Grover	145.00	
8.5	1-Beading machine	275.00	
8.6	1-Pair Flange rolls	35.00	
8.7	1-Shaft extension guide roll	22.00	
8.8	1-Power double seamer	1,750.00	
8.9	1-Single roll	110.00	
8.10	1-Set extra seamer rolls	110.00	
8.11	1-21" Double seamer & chuck	121.00	
8.12	1-50" do do do	176.00	
8.13	1-Hand device for friction caps	99.00	
8.14	1-Power arch press	1,045.00	
8.15	1-Doubled geared Power press	5,170.00	
8.16	1-Motor & starter	275.00	
8.17	Shafting, belting, etc.	440.00	
		$10,997.00	28,000

SUMMARY

	PRICE	WEIGHT
Brine Room Equipment	$3,364.00	14,690
Cell Room Equipment	49,780.00	206,353
Evaporation Equipment	57,523.00	187,936.
Solid Caustic Equipment	13,577.00	132,472
Liquid Chlorine Equipment	55,550.00	138,435
Hydrochloric Acid Equipment	22,486.00	55,275.
Sub-Station Equipment	39,847.00	38,400
Drum Shop Equipment	10,997.00	28,000.
TOTALS - - - - - - - - -	$253,124.00	801,561
Equipment furnished by customer on our specs.	47,588.00	
	$300,712.00	
Engineering fee @ 6%	$ 18,043.00	
Total cost to customer f.o.b. New York City	$271,167.00	

PROPOSAL

Boston, Mass. U. S. A.
April 10, 1945

State of Mysore hereinafter called the Purchaser.

[illegible] Inc., of Boston, Massachusetts, hereinafter called the Company.

The Company proposes to furnish the Purchaser the articles listed in the attached bill of materials at the price and under the terms and conditions stated below or which may be attached hereto as a part of this proposal.

1. Price.

The price is $271,167.00 f.o.b. port of embarkation

payable in United States of America legal tender or the equivalent, free of charge to the Company for collection charges. This quotation will be protected for a period of 60 days from date, after which it will be subject to revision without notice.

The amount of any present or future excise, sales, privilege or use tax, federal or state, which the Company shall now or hereafter be liable for, or required to pay either on its own behalf or on behalf of the Purchaser or otherwise, with respect to the equipment covered by this proposal, shall be added to the prices contained herein and paid by the Purchaser in the same manner and with the same effect as if originally added hereto.

C. Payment.

Payment shall be made as follows, unless otherwise arranged.

i. 50% with the order.

ii. Balance by irrevocable letter of credit in a form acceptable to the Company and providing for payment in full in United States Dollars against presentation of invoices, shipping documents, and/or Certificates of Manufacture".

C. The letter of credit shall provide that in the event the Company, for any reason beyond its control, is prevented from making delivery from factory or delivery at the port of destination, a "Certificate of Manufacture", of the whole or any part of the material shall constitute delivery, and payment in full of any and all drawings under the letter of credit for the materials so delivered shall be made upon presentation of such certificate in lieu of the shipping documents.

D. Force.

(a) If either party (D) Says from acceptance of this proposal by an officer of the Company the performance is unable to either the Company, or the Company is unable to obtain, a United States Government priority rating sufficiently high to enable the Company to be reasonably assured of obtaining materials to complete the contract, the Company shall have the privilege of cancelling this proposal. It is agreed that, at the option of the Company, no work shall start until such priority rating has been properly extended to, or obtained by, the Company.

(b) The contemplated date of shipment is based upon conditions existing on the date of acceptance of this proposal, is subject

to any subsequent changes, and is based upon the Company's ability to secure the necessary materials.

(c) Purchaser agrees upon notification by the Company to accept such suitable substitutions or changes in original specifications as an agreed adjustment of the price stated herein, as may be necessary to complete manufacture of the equipment. The Company, however, shall not be held responsible for any decrease in efficiency, service, or the breach of warranty occasioned by such substitutions or changes.

(d) Purchaser agrees to accept delivery of such equipment, save in the event of the prevention or act of the Company's manufacture if the same has not otherwise been made by the time balance of equipment as herein provided, upon proper allowance for such items not then delivered.

(e) Immediately upon the acceptance hereof the Purchaser shall execute in duplicate the usual form of lease which shall be submitted to Purchaser by the Company as ready for shipment, to secure to and vest in Company thereof as on the terms of this proposal.

(f) If, for reasons beyond the Company's control, the Company is prevented from making shipment from the factory or point of manufacture, or if Purchaser is prevented from furnishing shipping instructions, the title of the equipment to a common carrier or a Certificate of Manufacture shall constitute delivery, and is recognized as a shipping document the payment shall be made accordingly. Upon such certification the Company reserves the right to place the same in storage, at the Purchaser's risk and for the Purchaser's account and risk.

4. Delivery.

The Company shall not be liable for loss, damage, detention or delay due to war, riots, civil insurrection or acts of the common enemy, strikes, fires, accidents, acts of civil or military authority, personal requirements, orders or regulations, delay in transportation, delay by carriers of materials, delay in substitution, or other causes beyond the reasonable control of the Company. Acceptance of delivery from the carrier shall constitute a waiver of all claims for damages by reason of delay in delivery or for damage or loss in transit. Unless prices quoted herein are protected unless otherwise stated by the Company. Increased cost of fuel, or due to manufacturer's specifications or routing shall be paid by the purchaser. No extra charges shall become due on shipments completed. If shipment or any other act or condition affecting shipment for the convenience of any part thereof shall be delayed on account of the purchaser, payment shall become due upon purchaser by written notice that the goods are ready for shipment, and the goods shall be held at purchaser's risk and expense.

5. Warranty.

(a) The Company warrants the equipment to be made of materials of a kind and quality reasonably suited to the conditions under which it will be operated, as described and specified by the purchaser, and the Company agrees to replace or repair f.o.b. point of manufacture any part found by it to be defective within one (1) year from date of delivery. Misrepresentation, however, is not to be considered on a defect. The Company shall not be held liable for any damage, delay or loss which may result, directly or indirectly,

from the equipment, obsolescence, breakage, repair or operation of any of the equipment described.

(b) If the equipment fails to meet the specifications and warranties herein contained, the Purchaser shall notify the Company in writing, and the Company shall have reasonable time and opportunity to make the equipment or the warranties or supply other equipment in its place. If the Company is unable or fails to make the equipment meet the warranties, or fails to supply other equipment which meets the warranties, the Purchaser, unless other remedies are specifically agreed upon, shall receive the equipment at the expense and return the same, freight prepaid, to the Company's plant from which originally shipped and the Company shall refund the amount which may have been paid on the purchase price.

The right to reject the equipment under the conditions as above specified, or to receive back the amount paid on the purchase price, shall constitute the sole and exclusive remedy of the Purchaser for the breach of any warranty, expressed or implied, in connection with said equipment.

C. Installation.

When the Company has delivered the equipment hereto specified to the premises of the S.U.C. point hereto named, it shall have completed its obligations with the Purchaser for delivery of said equipment. The Company shall not bear the expense of installation, but upon request will provide competent engineers to supervise the setting up or erecting of the equipment. The Purchaser shall pay the Company for the services of said engineers

at the rate of $500.00 per month per man, beginning the day of departure from the Company's shop or equivalent starting point and continuing until return thereto, and shall pay for meals and lodging, and transportation both ways. The Company will furnish outline drawings of equipment to be supplied. The Company accepts no responsibility for material and equipment or for the acts of men furnished by the Purchaser, nor will it be responsible for the performance of equipment not set up or started under the supervision of its engineer unless deficient performance is caused by defects in workmanship of the installation.

7. Patents.

The Company agrees to indemnify the Purchaser against any loss sustained by the Purchaser because of the infringement by the equipment herein furnished of any patents covering said equipment to the extent, and no more, of the total amount paid by the Purchaser to the Company on the purchase price of the equipment. The Purchaser agrees to indemnify the Company against any loss sustained by the Company because of the contributory infringement by the Company in furnishing equipment used in a patented combination or process operated by the Purchaser.

8. Agreements.

There are no provisions, agreements, understandings or warranties expressed or implied except as herein set forth and nothing is included that is not particularly mentioned herein. This proposal contemplates one contract complete as hereinabove detailed, for the price set forth in Item 1. Upon mutual agreement, however,

any item may be omitted or substituted and the price of the total proposal increased or decreased accordingly. This proposal is for the plans as one unit, and parts thereof, or of equipment contained therein, will not be sold individually at the prices for such items contained in the proposal [illegible].

Any changes made in the said terms or specifications hereto annexed necessitating additional cost or delay shall be made at the expense and risk of the [illegible]. This proposal, including the attached list of [illegible] and specifications and [illegible], are hereby approved for the [illegible] by an executive officer thereof, duly authorized to do so. Accepted proposals are not subject to cancellation.

[illegible] Corporation, Inc.

By: _____

[illegible]

5. Refrigeration

This will consist of refrigeration Compressors and accessories including motors, starters, piping, pumps etc. Also brine cooler, chilled water cooler (for chlorine), chilled water cooler (for caustic) and all pipes, fittings, valves, gaskets etc.

6. Caustic Fusion

Consisting of cast iron fusion pots including brick housing vertical centrifugal pumps, drum loading devices and crane to handle pots.

We offer for your preliminary consideration the approximate price of Four Hundred Fifty to Four Hundred Seventy Five Thousand Dollars ($450,000.00 - $475,000.00) for the engineering designs and equipment listed above, F.A.S., New York boxed or otherwise suitably prepared for export shipping.

Synthetic Hydrochloric Acid Plant - E-1974-C

The HCl Plant would be designed to produce One (1) Metric Ton of 100% equivalent HCl as 20° Be' hydrochloric acid per day by burning hydrogen with chlorine. This unit consists largely of silica ware which is manufactured in England and could therefore be shipped direct from there and paid for in pounds sterling. The process is a very simple one. The HCl gas resulting from the burning of chlorine and hydrogen in a special type burner, is cooled in silica coolers and then absorbed in water flowing counter current to the flow of the gas in horizontal silica tubes. The exit gas is scrubbed with water to prevent any air pollution.

The equipment of the HCl plant would consist of the following principal items of equipment:

1. Silica burner for the combustion of hydrogen and chlorine.
2. Silica coolers, horizontal pipes.
3. Silica absorbers, horizontal pipes including tower and U-bends.
4. Supports for silica equipment

5. Hydrogen and chlorine piping to burner from borderline of plant site.

6. Hydrogen gas pump with motor and starter.

7. Water and miscellaneous piping.

8. Instruments and control equipment.

9. Miscellaneous, bolts, gaskets etc.

The approximate price for the engineering designs and the above listed equipment, f.a.s. New York would be Ten Thousand to Twelve Thousand Dollars ($10,000.00 - $12,000.00) U.S. Currency.

* * * * * * * * * * * * * * * * * * *

All the above prices include a fully paid-up license and while no buildings or foundation materials are included, we would supply drawings of equipment foundations and outline drawings of suitable buildings.

Conditions permitting we would, if requested, furnish a skilled engineer to supervise the erection and initial operation of the above described plants.

If the above approximate figures are of interest we will, if requested, prepare detailed proposals covering the above plants for submission to your principal. In the meantime we await your further wishes in the matter.

Yours very truly,

CHEMICAL CONSTRUCTION CORPORATION.

F. J. Bartholomew

CCC 181 15M 5-45 HJL PTD. IN U.S.A.

CHEMICAL CONSTRUCTION CORPORATION

COPY

E

May 31, 1945

Col. G. E. Felton, Representing
The Mysore Co. (India)
75 Federal St.
Boston, Mass.

Re: Caustic Soda, Urea, and HCl Plants
Our Ref. E-1974

Dear Col. Felton:

This will confirm in more detail, the information which we gave you in this office on May 28th with regard to the above projects.

There is considerable work attached to the preparation of formal contract proposals and it is very difficult to obtain firm prices from vendors without submitting to them engineering data which is not yet available so in order to save time we are stating only preliminary prices atthis time. We believe however, that they are close enough to enable your principals to come to a decision on the matter and obtain the necessary authority to proceed with the various projects.

We have prepared preliminary cost estimates on Caustic Soda, Urea and Synthetic Hydrochloric Acid Plants, as follows:

Urea Plant - E-1974-A

The Urea Plant would be designed to produce two (2) metric Tons of Urea Crystals per twenty four (24) hours of operation using anhydrous ammonia and carbon dioxide as the raw materials. As we explained in our office, this is a very small plant and the cost will be relatively high as compared with a plant of larger capacity as for instance a ten (10) ton plant.

The process works about as follows: Liquid ammonia stored under a pressure of 180 pounds per square inch is introduced into the bottom of a silver-lined autoclave at high pressure by

means of a multi-stage high pressure liquid ammonia pump. Liquid CO_2 is supplied at the same time and carbamate of ammonia is formed in the autoclave at a pressure of about 5000 pounds per square inch and a temperature of 175-200°C. At this pressure and temperature the carbamate $(NH_3)_2\ CO_2$ is partially transformed into urea $(NH_4)_2\ CO)$ if reaction time is allowed. The next phase of the process consists in the separation of an aqueous solution of urea from the excess of ammonia and carbon dioxide produced by the decomposition of non-transformed carbamate. When the temperature of the liquid flow reaches 120°C, a let down pressure tank permits the elimination of the ammonia in excess. In the urea still, a silver-lined packed column working under an atmospheric pressure and a temperature of 80°-90°C, the unconverted carbamate is decomposed. Ammonia gas and carbon dioxide are evacuated at the top of the still, while urea solution is drawn off from the bottom. Aqueous solution of the urea is concentrated in a vacuum evaporator and the crystalline urea is centrifuged and dried. The ammonia and CO_2 are recovered and reused.

The equipment of the Urea plant will consist of the following principal items:

1. Two (2) anhydrous ammonia storage tanks 5'ø x 14' long including bayonet heaters, and safety valves.

2. CO_2 gas holder - 500 cubic foot capacity.

3. Anhydrous Ammonia pump including motor and starter.

4. Two (2) CO_2 compressors with coolers, condensers, dryers and motors and starters.

5. Liquid CO_2 storage tank with cooling coils, refrigerating compressor, motor and starter.

6. Liquid CO_2 pump including motor and starter.

7. Autoclave converter, carbon steel multi layer shell with silver liner and 1½" steam coils around outside.

8. Cooler - tubular type. Some tubes of stainless steel, others silver lined, carbon steel.

9. Urea Still - carbon steel with silver liner.

10. Ammonia Absorber complete with concentrating column, cooler, feed preheater, condenser, surge tank and feed pump.

11. Urea Evaporator to handle urea solution.
12. Vertical Centrifuge with motor and starter.
13. Mother liquor tank, 3'ø x 3' - steel, rubber lined.
14. Mother liquor pump with motor and starter.
15. Rotary Dryer to dry urea crystals.
16. Conveyor, bucket elevator, storage bin and weigh scale.
17. Control Equipment
18. Power Wiring
19. Process piping
20. Misc. piping, steam, water and air.

We estimate the engineering designs and the equipment listed above f.a.s. N.Y. would cost about Two Hundred to Two Hundred Twenty Five Thousand Dollars ($200,000.00 - $225,000.00)

Caustic Soda Plant - E-1974-B

This plant will be designed to produce 8 metric tons of 100% Caustic Soda (NaOH) as solid caustic per 24 hours from rock salt using the electrolytic process. The rock salt is dissolved in water and the usual impurities, calcium and magnesium are removed by precipitation. The brine is clarified by settling and filtration and saturated with purified recycled salt before going to the cells. Direct current for the cells is obtained from high voltage alternating current by step down transformers and motor-generators. Chlorine and hydrogen gases are evolved and a caustic soda solution containing about 11.3% NaOH and 15% NaCl is drawn from the cells. The gases are drawn separately and processed. Hydrogen is sprayed with water and cooled to remove salt and caustic. It is then compressed and used for the manufacture of hydrochloric acid or for other purposes. The Chlorine is cooled and then dried with sulphuric acid before compression and refrigeration to liquid chlorine for storage in chlorine tanks.

The cell liquor is evaporated to a NaOH content of about 50% by weight. Salt crystallizes out of the liquor and is removed by continuous settling and returned to the process. The 50% caustic soda solution is finally dried in fusion pots and packed in drums for shipping.

The plant will consist of the following:

1. Salt Handling, Dissolving, Brine Treating & Storage.

This will consist of salt conveyor, dissolving tanks, reagent tanks, brine treating tanks, sand filter sludge tank, finished brine tank, constant level feed tanks, slurry tank, resaturation tank, brine preheaters, pumps control instruments etc.

2. Electrolytic Cells, Auxiliaries & Rectification

This will consist of transformers, mg sets, power wiring, bus bars, 60 Hooker type "S" cells piping, crane, hoist and trolleys, sump pump and control equipment.

3. Chlorine Liquefaction, Storage & Loading

This will consist of chlorine compressors, coolers, dryers, acid mist tank, acid separator, liquid chlorine storage tanks, sulphuric acid tanks and feeding device, pump, track scale, piping, valves, air compressors and receivers, chlorine drum scale, air dryer liquid chlorine separator control instruments, chlorine condenser, sulphuric acid cooler, and chlorine compressor for evacuating tanks.

4.. Caustic (50%) Evaporation & Storage

This will consist of one double effect nickel clad caustic evaporator with flash tanks, salt receivers, vacuum pump, filtrate receiver, salt wheel, steam siphon, condenser, condenser tank, Valves, gauges, pipes, fittings and pumps. Also cell liquor storage tank, cell liquor pump, condensate tank, cooling and settling tanks, chilled caustic storage tank, caustic cooler sulphate removal tank, transfer liquor tank, transfer pumps, settling tank pump, filtrate pump, vacuum filter, 50% caustic storage tanks, 50% caustic pumps, piping, fittings and valves and all control instruments. Dial weigh scale for caustic drums and one slurry tank with agitator.

S. G. SASTRY, B.A., M.Sc., (LOND.)
DIRECTOR OF INDUSTRIES AND COMMERCE
AND
DIRECTOR OF SANDAL OIL FACTORY,
(MYSORE STATE SERVICE—RETIRED.)

757
SIR KRISHNARAO ROAD,
BASAVANGUDI,
BANGALORE CITY

IMMEDIATE.

31st July 45.

Dear Mr. Noronha,

Sub: Electrolytic alkali manufacture in Mysore State.

From a letter I have received from Col. Felton, Boston, I understand that two more estimates - one from the Russell Engineering Co., and the other from the Chemical Construction Corporation of New York - have been handed over to Dr. K.L. Ramaswamy who had recently been deputed to go to America. Mr. S.A. Srinivasan, Mr. B. Rudra and myself are meeting the Minister for Industries on the 6th August. Since we are interested in the scheme of electrolytic alkali manufacture and since we have already received one such estimate through Government furnished by Chas. T. Main Co., of Boston, I shall be glad if you will kindly give me copies of the other two estimates immediately to enable me to check up the information I have on my files with those furnished by the other two firms.

Mr. S.A. Sreenivasan will meet you in this behalf and I shall be obliged if you can hand over the estimates to him.

Thanking you in anticipation,

I remain,
Yours sincerely,

Charles E. Noronha, Esq., M.A.,
Secretary to Government,
Development Department, BANGALORE.

The Mysore Company
REPRESENTING
THE STATE OF MYSORE, INDIA
75 FEDERAL STREET
BOSTON, MASSACHUSETTS

CABLE ADDRESS
"MYSORE" BOSTON

BENTLEY'S SECOND PHRASE
CODE BOOK

LIBERTY 2109

June 7, 1945

My dear Sreenivasan:

SUBJECT: Alkali and Urea Plant Estimates

Enclosed are rough estimates of the cost of ~~an~~ alkali, urea and hydrochloric acid plants.

The Chemical Construction Company were not willing to go into as much detail on these estimates as were the several other companies from whom I have submitted estimates recently. They feel that until they know definitely that an import license can be procured that they do not wish to spend the necessary time to prepare a careful estimate.

I am sure this is based upon the experience they are having with the proposed extension of the ammonia plant. From their conversations I judge that they are not too happy about the manner in which the ammonia plant details have been handled.

The estimate for the alkali plant is based on the use of Hooker cells. These estimates together with those sent previously should give you an approximate idea of the amount of money to be appropriated and the equipment necessary for your proposed alkali plant.

When decisions are arrived at in Mysore and the import license obtained it will then be necessary to request detailed quotations and delivery dates for your plants.

I have not been able to secure any competitive quotations on the urea plant. From all the information I receive, the Chemical Construction Company seem to be about the only company qualified to do this particular job.

Urea is only manufactured by a few companies in the U.S.A. and the number of qualified experts of urea seeems to be limited.

The Chemical Construction Company point out that the required capacity is very small and the capital investment very high for the amount to be produced. In their opinion, a very much larger plant turning out several times the output of the proposed one will only increase the investment approximately 50%.

This is something you will have to consider seriously if you propose erection of this plant.

Dr. Ramaswamy has had several conversations with them relative to the urea and alkali plants and will, I believe, be prepared to answer many of your questions upon his return.

Sincerely,

GEF:EF
Enc.

Extract from File bearing Diary No.513/I&C.- Proposal for Kirloskar for the manufacture of electric motors etc

1 to 9 xx xx (on 23/7/45)

9. The proceedings of the meeting are as follows:-

10. L.Caustic Soda scheme.

The Chief point to be considered was whether the company to be started could compete with foreign products in the post-war period. Mr. Srinivasan said the company proposed to manufacture about 12,000 tons of caustic soda p.a. The existing factories in India were at present the following:

1. Mettur Chemicals (which were proposing to duplicate their plant).

2. Tata's factory at Mithapur (Kathiawar).

3. The I.C.I.factory at Calcutta (not in operation at present.

The four new plants to be imported by the Govt.of India were to be distributed as follows:

1. Mr. Lala Sri Ram, Delhi.
2. " Ambalal Sarabhai, Ahamedabad.
3. " Ahmed Rathur, Calcutta.
4. " For a firm at Bombay.

He (Mr. Srinivasan) thought there was scope for another factory in South India. Apart from the Mysore Paper Mills, which required caustic soda for cooking the bamboo pulp, the projected expansion of the Soap Factory would also absorb a large portion of the output of the proposed factory As regards the by-product, chlorine, he said he was confider of finding an assured market for 60% of it, but it was probable that up to 80% could be disposed of, as they intended manufacturing bleaching powder, perchloron(for purification of water, sewage and drainage) and hydrochloric acid.

11. As regards the capital, the Minister said that Mr. R.D.Char had told the Dewan that at least Rs.40 lakhs would be required. Mr. Srinivasan said their plans and estimates had been scrutinised by experts in America and

and Mr. R.D.Char had cabled from there that the scheme should be proceeded with immediately. They were not particular about Govt. participation. The Mysore Paper Mills had agreed to give them a site. They wanted only the following assistance from Government.

12. (1) A strong recommendation to the Government of India for priority for the import of machinery and the release of dollars.

(2) To charge a rate of .15 of an anna per KWH. for electric power, to be gradually increased to .2 anna.

Mr. Umanatha Rao said the Paper Mills required about 500 tons of caustic soda p.a. Before the war they used to purchase the stuff from Havero's Bombay, at Rs.10/8 per cwt. Now, the price was Rs.18/13 per cwt. Mr. Srinivasan thought that the price to be charged by the proposed company would not exceed Rs.15 cwt. Mr. Umanatha Rao thought there would be no difficulty about disposal of the caustic soda but the disposal of chlorine would be difficult.

Mr. Hayath said he had no objection to the rate of .15 anna if the Financial Secretary agreed, or to some kind of agreement as was entered into with the Mysore Chemicals and Fertilisers, Ltd., but the load factor must be guaranteed (i.e. they must realise 80 or90% of the power supplied (about 1500 KW.) at ~~1~~ 1 KW per hour or 24 KW per day of 24 hours). The Mills were charged .55 anna per day and .35 by night to encourage night working.

In conclusion, the Minister asked Mr. Srinivasan to examine once again, in consultation with Mr. R.D.Char, the following two points and report to Government:

1) whether the capital of Rs.25 lakhs proposed was sufficient

2) whether they were able to find a steady market for their products after the war.

13. Mr. Srinivasan wanted Government's decision re: Managing Agency to be reconsidered. He said Mr. R.D.Char would be in

would be in Bangalore about the 28th or 29th instant and would be glad to see the Minister. The Minister said he would be at Mysore on those dates. Mr. R.D. Char would either see him there or at Bangalore on - 3rd August.

14 to 20

xxx xxx, xxx

The Mysore Company

REPRESENTING

THE STATE OF MYSORE, INDIA

75 FEDERAL STREET
BOSTON 10, MASSACHUSETTS

CABLE ADDRESS
"MYSORE" BOSTON
BENTLEY'S SECOND PHRASE
CODE BOOK

TELEPHONE
LIBERTY 2109

June 29, 1945

My dear Sreenivasan:

A few days ago the Chemical Engineer of the James Russell Engineering Works, Inc., left the enclosed floor plans of the alkali plant with me.

I am enclosing them for your information and to be attached to their estimate.

Sincerely,

GEF:EF
Encs.

CAUSTIC-CHLORINE PLANT

FOR

STATE OF MYSORE

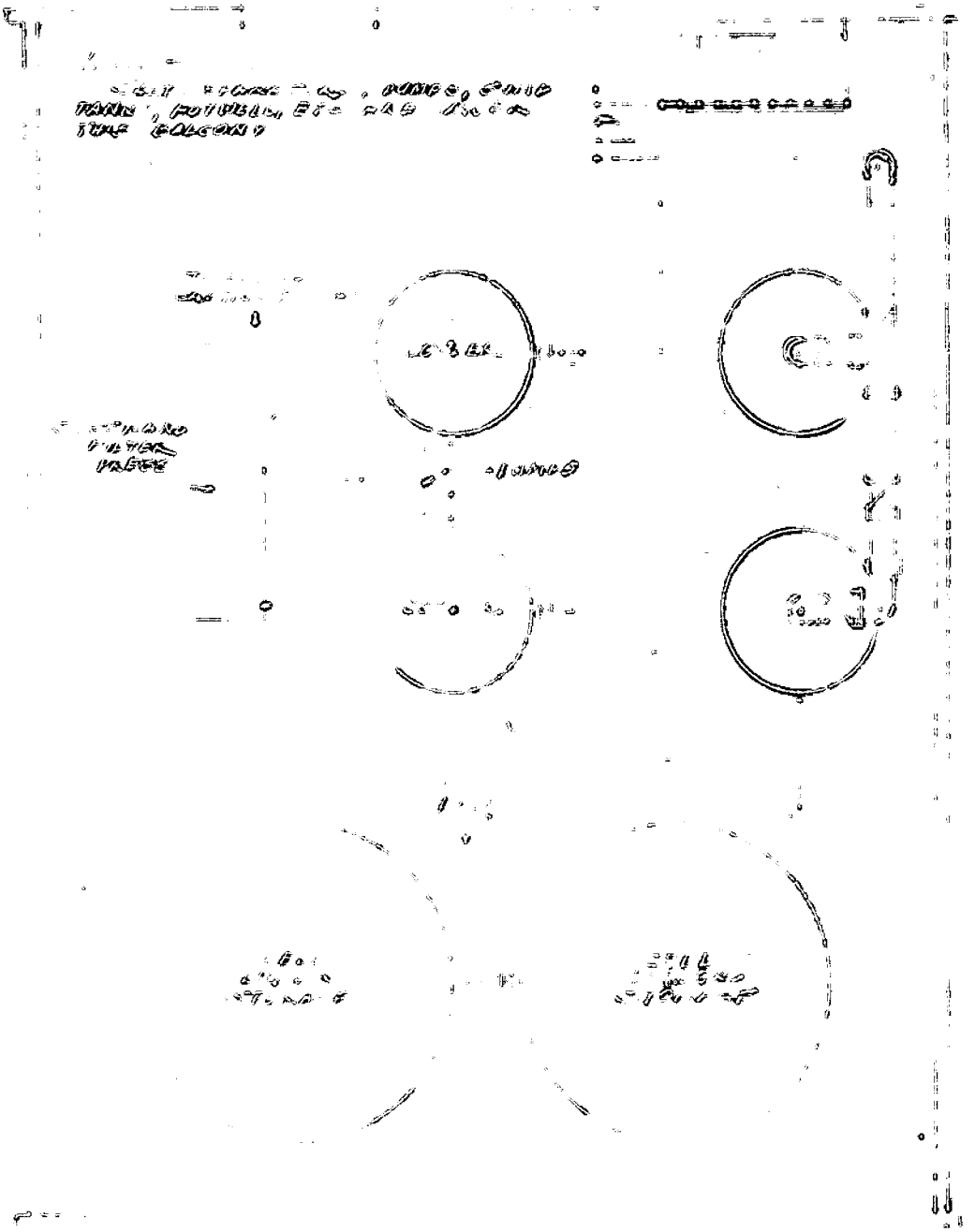
14,500 lbs CHLORINE PER DAY

ROUGH FLOOR PLANS

SCALE 1/8" = 1'

JAMES RUSSELL ENGINEERING WORKS, INC.

MAY 1, 1945



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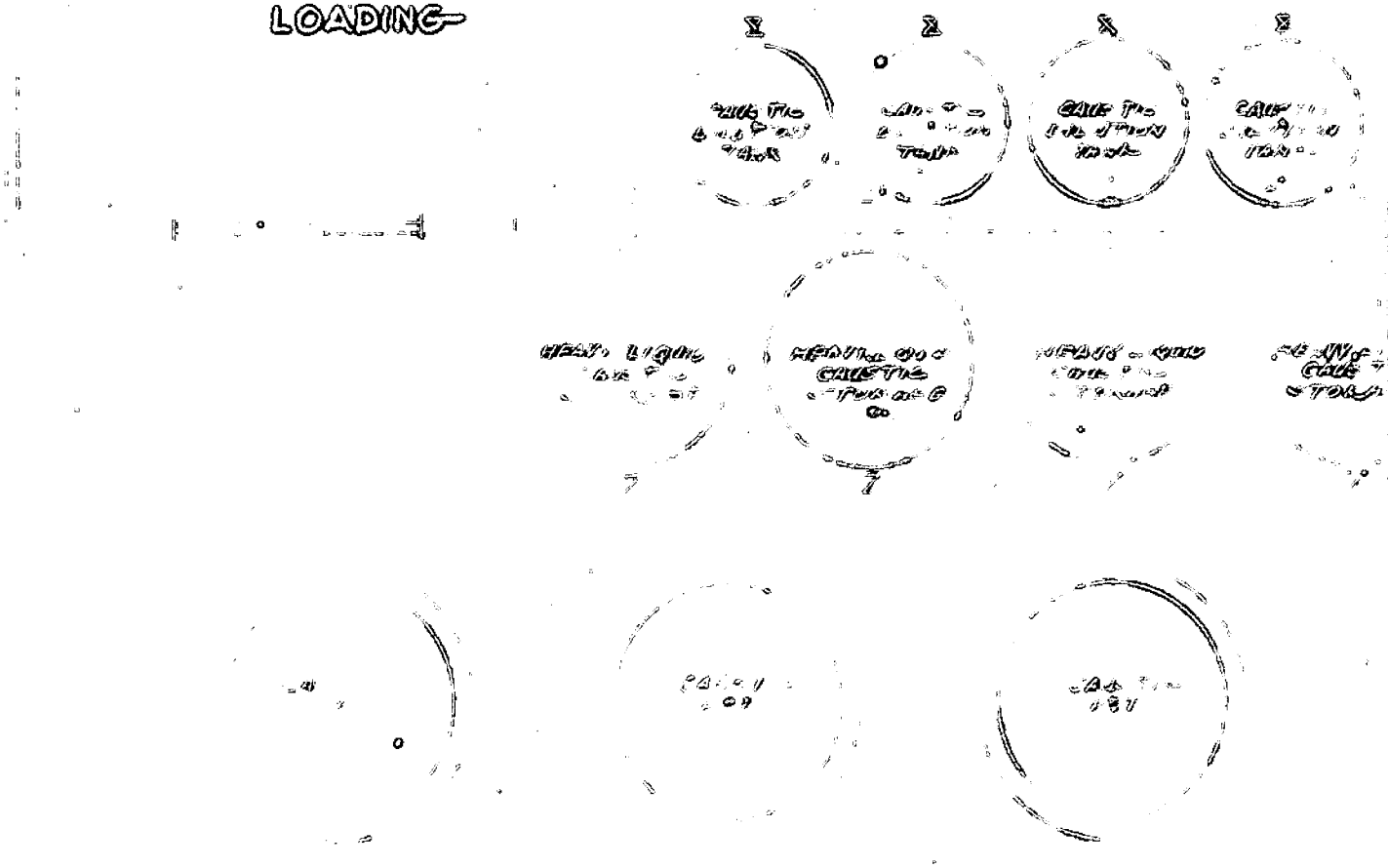


POT
ROOM

CAUSTIC DEPARTMENT

DRUM SHOP

and DRUM SHOP

By air reg mail — M 9-43-21

No D 2311 / Dtc 9.43-21 D/11.X.48

To. Mr G. E. Zeltin.
The Mysen Company
75 Federal Street.
Boston 10, Massachusetts
U.S.A.

Dear ~~Sir~~ Mr. Zeltin,

Subj: Alkali plant

With ref to the correspondence ending with your letter dated 29.6.1948, enclosing the flow plan of the alkali plant proposed by James Russell Engineering Works, Inc, I am directed to state that it has been decided to issue this Scheme for ~~being~~ ~~finally~~ ~~through~~ to by Private arrangement. Accordingly orders ~~are separately under issue~~ granting certain facilities

have been granted
to the ~~Mysore~~ Associated
Mysore Industries (Incorporated
in Mysore) Sree Krishna Buildings.
Reserve Road B. Cantonment (on whose behalf
~~to R.D. Chari~~ has already approached you),
to ~~start~~ establish the electrolytic alkali
industry in Mysore as a Joint
Stock Company, ~~on whose behalf~~
~~he R.D. Chari has already~~
~~approached you~~.

Copies of all the steps
are being sent to the above
firm this the Commr. E.D.P
in duly. Please ~~for~~ ~~necessary~~
further action. ~~He will write~~
~~to Govt approach you in due~~
~~course~~.

Yours &c.
C/4/X

No ND 2012 87 11.X.43
Copy to Commr. E.D.P for further action
The Draft file will be sent separately.

E. Noronha, M.A.,

Mentxxx

11th October 1945.

By Air & Sea Mail.

No D 2311 / DRC 9.4521.

Dy

Subject:- Alkali Plant.

With reference to the correspondence ending with your letter dated the 29th June 1945, enclosing the floor plan of the alkali plant prepared by the James Russell Engineering Works, Inc., I am desired to state that it has been decided to leave this scheme to private enterprice. Accordingly certain facilities have been granted to the Associated Mysore Industries (Incorporated in Mysore), Sree Krishna Buildings, Avenue Road, Bangalore City, (on whose behalf Mr. K.D.Ghor has already approached you, to establish the electrobytic alkali industry in Mysore as a Joint Stock Company.

Copies of all the estimates are being sent to the above firm through the Commissioner of Economic, Development & Planning in Mysore, Bangalore, for further action.

Yours sincerely,

Sd/ C.E.

Mr. G. B. Pelton,
The Mysore Company,
75, Federal Street,
Boston, Massachusetts,
U.S.A.

Jsk.

WB 1031
1-6

CONFIDENTIAL.

BOARD OF SCIENTIFIC AND INDUSTRIAL RESEARCH

GENERAL AND REVENUE SECRETARIAT

PROCEEDINGS OF THE FIRST MEETING OF THE BOARD OF SCIENTIFIC AND INDUSTRIAL RESEARCH (FORMERLY BOARD OF INDUSTRIAL PLANNING AND CO-ORDINATION) HELD AT 3-30 P.M. ON FRIDAY THE 26th NOVEMBER 1943 IN THE CHAMBERS OF THE MINISTER FOR INDUSTRIES AND SUPPLIES.

PRESENT.

1. M. A. Sreenivasan, Esq., B.A., Minister for Industries and Supplies. (*Chairman.*)
2. *Rajasabhabhushana* Sir C. V. Raman, Esq., D.SC., F.R.S., N.L.
3. Sir J. C. Ghosh, Esq., D.SC., F.N.I.
4. *Dharmaprakasha* Devarao Shivaram.
5. Mr. S. L. Mannaji Rao.
6. The Secretary to Government, Development Department.
7. The Secretary, Economic Conference.
8. The Director of Industries and Commerce.
9. The Government Director, Industrial Concerns.
10. The General Manager, Mysore Iron and Steel Works.
11. The Chief Conservator of Forests.
12. Dr. B. K. Ram Prasad, D.SC., M.I.E., General Superintendent, Jog Project.
13. The Assistant Secretary to Government, Development Department. (*Secretary.*)
14. Dr. K. A. N. Rao, D.SC., F.I.C., D.I.C., Technical Assistant to the Government Director, Industrial Concerns (Joint Technical Secretary.)

ABSENT.

1. Sir M. O. Forster, PH.D., D.SC., F.I.C., F.R.S.
2. Mr. B. Rama Rao, M.A., Director of Geology.

(Intimations regretting their inability to attend the meeting were received.)

AGENDA.

1. Agenda for the Joint meeting of this Board and the Central Board of Scientific and Industrial Research to be held on the 30th November 1943.
2. Chemical Engineering and Chemical Processes/Establishment of a Central Research Institution.
   Mover:—Sir J. C. Ghosh.
3. Nitrogenous Fertilisers.
   Mover:—Dr. K. A. N. Rao.
4. Distillation of Essential Oils in Mysore.
   Mover:—Dr. K. A. N. Rao.
5. Manufacture of Sulpha-drugs.
   Mover:—Dr. K. A. N. Rao.
6. Manufacture of Plastics.
   Mover:—Mr. E. V. Ganapati Iyer.
7. Any other subjects.

In welcoming the members to the first meeting of the reconstituted Board of Scientific and Industrial Research, the Chairman thanked the members for having so readily agreed to serve on the Board and come to the meeting at such short notice. He stated that the people of the State were fortunate in having among them such a galaxy of brilliant men of science. With the advice of the scientists, businessmen, the departmental officers and other members of the Board and the sustained enthusiasm and enterprise of the Government and the people, and the facilities and resources available, he hoped the State would make further advances along the road of industrial development in which it had already made such marked progress.

He explained how as a result of the recognition of the need by the Government for a body to co-ordinate scientific ideas and research work in the State and to avoid overlapping and wastage of effort the Industrial Research Committee came into existence. This Committee later gave place to the Board of Industrial Planning and Coordination which served to emphasize the planning and production aspects with special reference to war-time needs. The latter Board consisted only of certain Heads of Departments. With the revival of the Economic Conference, it was found desirable to constitute a committee on the lines of the Board of Scientific and Industrial Research at Delhi with which the Mysore Committee could maintain more intimate contact and liaison and the present Board was the result. He expressed his gratitude to the Hon'ble *Diwan Bahadur* Sir A. Ramaswami Mudaliar and Sir Jnan Chandra Ghosh for having suggested and encouraged this idea. The annual meeting of the Central Board of Industrial and Scientific Research would be held at Bangalore in the next few days and a joint session of the two Board had been arranged for at 3 P.M. on the 30th November.

He then invited the attention of the members to the agenda placed before them and suggested that, the main business for the day would be to decide what subjects could most usefully be included in the agenda for the joint session. He then requested Sir J. C. Ghosh to speak on item 2 in the agenda.

~~The Chief~~ Engineering and Chemical Processes Establishment of a Central Research Institution.—Sir J. C. Ghosh said that this was one of the suggestions made by Sir M. Visvesvaraya. The Institution would have sufficient resources and a body of trained chemical and mechanical engineers, metallurgical experts and other technicians, with whose aid experiments could be carried out up to the pilot plant stage for solving problems arising in the several industrial concerns and in the course of scientific research. Flowsheets, plans and designs could be prepared for building even entire factories, if necessary and ultimately, even fabrication of machinery and spare parts could be undertaken. This would lead the country a long way on the road to self-sufficiency in the matter of getting her own requirements for all her industries. He explained how in times of emergency as the present one when normal trade channels were dislocated, the industrial production and advancement of the country were likely to suffer on account of its entire dependence on other countries for her machinery, equipment and even spare parts. He also indicated how in the post-war period it was likely that the needs of other industrially advance countries would be considered paramount, with the result that India would suffer.

He next emphasised the favourable position of Mysore for developing an institution of this type by virtue of her resources, the existence of important metallurgical and chemical units like the Mysore Iron and Steel Works, the Mysore Chemicals and Fertilisers and the Industrial & Testing Laboratory etc., the proximity of the Indian Institute of Science, the excellent types of laboratories and workshops attached to the colleges of the Mysore University and above all the progressive industrial policy of the Government. Touching on the financial aspect of the proposition he feared that it might not pay in the beginning, but after some years, when the value of such an institution would come to be recognised and the number of problems handled increased, the financial position would improve. That was why he preferred to call it a research workshop. With the assistance of the Governments of Mysore and of India and other industrial organisations in the country, this enterprise should be able to stand on its own legs in a short time after its inception.

Sir C. V. Raman enquired whether it would not be better to leave the development of this idea to the industrialists interested in any line of manufacture which had given indications of success, as a result of experiments in the laboratory. Since the institution proposed would be semi-academical and semi-commercial, he was doubtful of its success as a business concern. He was of the opinion that exploitation of ideas and schemes after the stage of experimentation in the laboratory should be entrusted to businessmen to ensure success.

Sir J. C. Ghosh agreed with this view with reference to countries more industrially advanced like Great Britain, U. S. A., Germany etc. But in the case of India, it was necessary to provide for an institution of the type which would come to the aid of the industrialists by giving them new ideas as well as flow-sheets and designs to exploit those ideas on a commercial scale. He referred to Research Enterprises Ltd., of Canada, which was engaged on work of a similar type and as the name indicated that was a semi-scientific and semi-commercial concern doing research work as well as development work. Whereas in a country like the U.S.A. the gap between the birth of a new idea and its practical application would be about three years, in countries like India the time-lag was likely to be very much more. An institution of the type suggested would bridge this gap and be a great asset to the country.

Sir, C. V. Raman felt doubtful whether every concern would be interested in all experiments and the developments. Each one of them would naturally be interested only in experiments that were a natural off-shoot to the line of business that it was already handling and would only encourage men engaged in investigation in that line. He was therefore still of the opinion that the whole matter should be left to the industrialists themselves to decide.

The Chairman observed that in an industrially backward country the Government also had to play its part and often take the initiative with a view to poineer or stimulate industrial advancement. It was with this object that the Government of Mysore had itself pioneered industries like the Government Soap Factory, the Silk Weaving Factory etc., and struck out new lines of development when private capital was shy. He invited Sir J. C. Ghosh to say how far a local enterprise if organised on the lines suggested, could hope successfully to compete with other well established enterprises in points of efficiency, cost etc, especially after the War.

Sir Jnan Chandra stated that he was hopeful of the prospects, but was not in a position to give definite information on the financial implications, not having worked out the exact figures. He suggested that the matter should be referred to a responsible committee to examine all aspects of the proposal in greater detail.

On an enquiry from the Chairman whether he expected that a proposal, of this kind would receive financial and other assistance from the Government of India or from the Central Boad of Scientific and Industrial Research, Sir J. C. Ghosh said that it would be an institution for the benefit of the whole of India and that as in the case of the ~~Scientific~~ Enterprises Ltd., of Canada to which the Government gave subsidies to cover losses, it should be hoped that the Governments of India and of Mysore would guarantee the concern against a fifty-fifty ~~lossess on~~ basis.

Answering Sir C. V. Raman, Sir Jnan Chandra said the institution proposed to be established in Poona would probably deal with only one or two types of industry.

Mr. Viswanath said that the establishment of an institution of the type proposed was worth considering only if there were sufficient problems arising in the existing industries which would be referred to such an institution. He doubted the success of such a scheme as all the major concerns had their own problems and their own technical staff, laboratories and workshops to solve them. He was sure that during the post-war period they would be able to get the machinery and equipment at far cheaper rates than if they were produced in this country. In such circumstances, he was not sure of the utility or success of such an institution. Sir J. C. Ghosh replied ~~saying~~ that ~~a part~~ from bigger concerns like the Mysore Iron and Steel Works, who perhaps had their own workshops and technical staff, there were hosts of other concerns which needed advice and assistance of such an institution and that it was not always wise to depend on foreign countries even for small spare parts and equipment which could be easily fabricated here.

Mr. Ganapati Iyer differed from Mr. Viswanath and said that even in the industrial concerns under his control there ~~was~~ a host of problems requiring solution and so far as his experience went there was no dearth ~~for~~ problems. He strongly pleaded for the establishment of an institution of the type suggested.

Mr. Devarao Shivaram said that it was a great hardship and a pity that industrialists in this country had to depend even for very small things on countries abroad and it was high time that they were made self-sufficient to the extent possible by undertaking the establishment of an institution of the type proposed.

Mr. B. G. A. Mudaliar welcomed the proposal and strongly supported it.

Mr. S. L. Mannaji Rao also supported the idea aud suggested that the concern should be run on a co-operative basis, each industry or interest concerned making a contribution.

Mr. Abdul Jabbar quoted in support of this idea, the instance of the Mysore Paper Mills contributing towards the Central Research Institute at Dehra Dun.

Mr. Devarao Shivaram insisted that if a Joint-Stock concern was to be ultimately thought of, it should be established in such a way that the research and technical work of the institute would be outside the control of the shareholders, to present the possibility in case a major portion of the shares were to get into the hands of persons interested only in one or two particular types of industry, of using the Institute for their own interests. This view found unanimous acceptance and it was decided that such a provision should be made in the Articles of Association of the proposed Joint-Stock concern if one was to be started. It was also agreed that the profits to be declared by such a Company should be as low as possible and that a maximum of two per cent return might be fixed in order to keep out mere profit-seeking speculators.

Sir C. V. Raman felt that the chances of success of such an institution were best in Mysore and suggested that the Government of Mysore alone may start this without invoking the assistance of any other Government and Mr. Mannaji Rao agreed to this.

The Chairman thought that by securing the support and collaboration of the Government of India the concern stood to gain in many directions and such a step was very desirable.

It was decided to place this matter before the forthcoming joint session of the two Board of Scientific and Industrial Research and take it up later in the light of the discussions at the joint session.

2. *Nitrogenous Fertilisers.*—In view of the paramount necessity to increase the production of the essential food crops in the State, particularly paddy in respect of which the State is deficit, it was unanimously considered desirable by the Board that the manufacture of nitrogenous chemical fertilisers should be increased rapidly. Two alternative proposals were placed by Dr. K. A. N. Rao for the consideration of the Board. The first was the manufacture of calcium carbide and proceeding therefrom to calcium cyanamide fertilisers on the one hand and other products like acetylene, acetic acid etc., on the other. Under the Jog Scheme, power supply would be available and small quantities of calcium carbide made in the electric furnace of the Ferro Alloy Plant at Mysore had been found satisfactory.

The alternative proposal was to increase production of synthetic Ammonia further and to manufacture therefrom nitrogenous fertilisers, such as, Ammonium

sulphate, Ammonium phosphate and Ammonium Nitrate and Urea, etc., all very valuable fertilisers.

The subject was fully discussed. Sir Jnan Chandra stated that an authoratative Commission which had gone into the question thoroughly in America, had reported that the use of calcium cyanamide as a fertiliser was declining and that as the demand for other products was limited, the scheme was not very helpful to the Grow more Food problem. He felt that the Government Director's suggestion that the production of Ammonia, and ammonium fertilisers to the extent of about 25 to 30 thousand tons in the State, would be suitable to meet all the requirements of the State and would be most helpful to increase the production of rice very substantially. He stated that the Government of India would be interested if the scheme provided for a production of over 50 to 60 thousand tons of Ammonium sulphate making use of the Trichinopoly gypsum deposits as this production would enable South Indian requirements in addition to Mysore requirements being met.

Mr. Ganapati Iyer said that he would propose that the production of synthetic Ammonia at Belagula be substantially increased by installing another Ammonia plant, in addition to the present duplication scheme, of the capacity of 10 to 20 tons per day. Thereby the production of Ammonia at Belagula would come up to nearly 25 tons per day and this would give a production of 25 to 30 thousand tons of Ammonium Sulphate or other Ammonium fertilisers. Such increased production was absolutely necessary in order to withstand the competition in the fertiliser market after the war as it would very considerably reduce the cost of production. Thereby the fertiliser would be made available to the agriculturists of the State at lower, competitive prices. The transport of Ammonia to Trichonopoly and the manufacture of Ammonium Sulphate there from gypsum might involve difficulties and in any case, required large-scale investigations. This would be obviated by taking up the production of the more valuable Ammonium Phosphate, Ammonium Nitrate and Urea fertilisers. He stated that Ammonium Phosphate may be largely useful in the country in the post-war period and urea as top dresser was an ideal fertiliser. Ammonium Nitrate contained the largest percentage of assimilable nitrogen. The Technical staff at Belagula had already full experience of the synthetic ammonia industry. In connection with the new plan, a plant of the latest type could be installed, thereby reducing the cost further. After meeting the requirements of the State, the surplus production of fertilisers could be made available to the neighbouring areas thereby helping the Government of India's general scheme. Approval and assistance of the Government of India to the State to obtain the necessary equipment had to be obtained.

Sir. J. C. Ghosh felt that the present supply of electrical energy at 0·25 anna per unit would make the production of Ammonia at Belagula uneconomical with reference to production cost. For the increased production under the scheme now recommended, power supply should be made available at rates not exceeding 0·15 of an anna per unit if the manufacture were to be economical.

After discussion, it was decided to defer the first proposal regarding cyanamide. The second proposal was accepted and it was agreed, that, at the joint session of the two Boards, the approval of the Government of India should be urged and that the Government of India should be requested to grant assistance and priorities for obtaining all the plant and equipment as early as possible. The Government of India should also be requested to give protection against foreign competition in the post-war period and to fix the prices of Ammonium Sulphate so as to include the minimum prices for electrical power supply with reference to cost of generation and transmission.

3. *Distilation of Essential oils in Mysore.*—The proposal was explained by Dr. K. A. N. Rao and Mr. Ganapati Iyer. Sir. J. C. Ghosh stated that this subject had also received attention of the All-India Board and that a special committee appointed by it had submitted some proposal.

Mr. Ganapati Iyer stated that in Mysore the essential oil industry had already made considerable headway as a pioneer, that there were in existence in the State numerous facilities for the successful development of this new industry. The Sandalwood Oil Factory in Mysore, was most up-to-date and Mysore produced the most important essential oil namely, sandal oil, in large quantities. Several investigations had already been conducted and cultivation on a large scale and been taken up by some of the departments of Government of several essential oil plants namely, patchouli, tree lavender, geranium, davana, peppermint, jasmine, etc. After some discussion it was agreed unanimously that All-India Board may be requested (1) to furnish all the information available on this subject, (2) to make available to this Board the results of investigations which had been carried out by the Central Board, (3) that the Government of Mysore may be requested to promote the establishment of a new concern in the State for taking up this industry on a large scale, if necessary as a development of the work of the Industrial and Testing Laboratory, and that the Government of India be requested by the two Boards at the joint session to refer to the Mysore Board all the problems connected with the supply of production of the essential oils in the country.

4. *Manufacture of Sulpha-drugs.*—Dr. K. A. N. Rao and Mr. Ganapati Iyer explained the scope that existed for the development of this most important manufacture in the State and the facilities already available. Mr. Ganapati Iyer stressed that as a measure of improvement of public health in the post-war period, the country should establish its own manufacture of these important drugs. In a matter of vital necessity like this the country should not be dependent upon foreign production. He said that preliminary work in the Industrial and Testing Laboratory and other concerns had already indicated promising results and that the assistance of the Government of India was quite necessary for the furtherance of the work, which would directly help the Government of India as also other public health administrations. He referred to some difficulties that now existed regarding the utilisation of the patents in the industry which had already been taken up by the firms, some of them being enemy firms.

It was agreed (*a*) that this manufacture be approved and arranged to be taken up in the State, (*b*) that the Government of Mysore and the Government of India be requested to provide all necessary facilities for the encouragement of this manufacture, (*c*) that, in particular, the Government of India be requested to facilitate supplies of aniline, benzene, toluene required for this work and (*d*) that may also be requested to provide facilities for utilising the existing including those held by enemy firms, the work being taken up at the Government Industrial and Testing Laboratory.

5. *Plastics.*—The subject was moved by Mr. Ganapati Iyer who explained the work done in Mysore so far. It was brought to the notice of the Board that the Mysore Iron and Steel Works had been manufacturing small quantities of phenolformaldehyde plastics and it was proposed to develop this manufacture further by extension to other types of plastics like urea-resin, etc. It was also intended to make use of the natuarally occuring ~~acing~~ in the State like lac, etc. After discussion, it was unanimously agreed that the All-India Board might be requested to make available all the information at their disposal on the subject and to recommend to the Government of India to give priority for the supply of machinery and of phenol.

6. *Manufacture of Alkali.*—This subject was moved by Sir J. C. Ghosh. He explained that in view of the great demand in the country for caustic soda, it was desirable to take up the manufacture. The alkali produced would be consumed in the soap and other chemical industries. Chlorine obtained as a by-product would be utilized for the manufacture of bleaching powder, ferric and other chlorides and organic chemicals. He also suggested that an investigation on the manufacture of phenol from benezne through the intermediate chloro-benzene may be carried out. This development was expected to find a useful outlet for the chlorine produced and incidentally meet the demand for phenol which is sorely needed for the manufacture of plastics, etc. This manufacture would be of a very complicated nature, requiring special equipment and no details were available. It was only in recent years that the U. S. A. had developed the processes.

It was agreed that the subject might be moved by Sir J. C. Ghosh, at the joint meeting.

The meeting then terminated.

T. SHAMANNA,
Secretary.

M. A. SREENIVASAN,
Chairman.

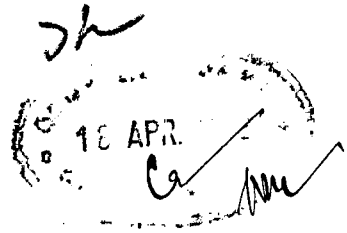
9fc. 301-44-15 6179 fc

The Associated Mysore Industries, Ltd.,

(Incorporated in Mysore)

SRI KRISHNA BUILDINGS,
Bangalore City.

18th April, 1946.



The Secretary to Government,
Development Department,
BANGALORE.

Dear Sir,

SUB: MANUFACTURE OF ELECTROLYTIC ALKALI.

When an application was sent to the Chief Controller of Imports for permission to import a portion of the plant and equipment from America, a reply has been received that he would like to have specific information regarding the availability or otherwise of similar type of equipment in the sterling area. I have made a special study of this subject for over 15 years and I know that no suitable plant can be had from England at the present time. As a matter of fact, the Government of India have recently ordered three electrolytic alkali plants from America, after a thorough study of the situation. In any case, purely from an official and technical point of view, the Chief Controller of Imports wants some more assurance that some formal enquiries have been made in the sterling area. About six months ago, I had met Mr. Norman Neville, Director of the British Plant Manufacturers Association who was then touring in India in the interest of british business. I gathered the impression then alone that England had nothing to offer in this special line. It has however, become necessary for us to institute some enquiries in London and I have to-day sent a cable to Capt. Binstead our Trade Commissioner in London followed up by an air mail letter. I enclose herewith copies of both the cable and the letter for the information of the Government.

In this connection, I would like to be permitted to state that when I had an opportunity of paying my respects to the Dewan on the 14th of this month, I had mentioned to him that it will be necessary for me to cable and write to the Trade Commissioner seeking some

The Associated Mysore Industries, Ltd.,

(Incorporated in Mysore)

SRI KRISHNA BUILDINGS,

Bangalore City.

information and I had also submitted to the Dewan that I shall be forwarding a copy of my cable and also of my letter to the Trade Commissioner for the information of Government.

If by any chance, the Trade Commissioner wants that the cable charges for sending me a reply from Londo should be debited to our concern, we agree to it gladly. In any case, it is necessary to obtain this information through official sources which will satisfy the Chief Controller of Imports in Delhi.

I would like to mention that the first meeting of the Board of Directors of the proposed Mysore Alkali and Chemicals Ltd., was held on the 13th of this month. Further action is being taken.

I remain,
Yours sincerely,

Sastry

(S.G. SASTRY.)

mentioned that the United Alkali Co., of England, have, it is reported, a very large installation of Gibbs Cells.

This enquiry is sent to you to find out if there are any British firms of Chemical plant manufacturers who specialise in the construction of electrolytic diaphragm cells for the manufacture of chlorine and caustic soda. You will probably get all the information you want if you contact the Federation of British Chemical Plant Manufacturers Association. About six months ago, one of their Directors, Mr. Norman Neville toured all over India and I happened to have the pleasure of meeting him at Bangalore. He was accompanied by a chemical engineer from the Aluminium Plant and Vessel Manufacturing co., of London and I spent more than a couple of hours with them. During the course of my talk I had touched upon this special plant I wanted and I gathered the impression that it was not likely that any British firm could offer electrolytic chlorine-alkali cells comparable in price and guaranteed efficiency of operation with the three well known cells very widely used in America and elsewhere at the present time, viz., KML type Allen Moore cells, Vorce Cells, and S-type Hooker cells. There are a number of other modifications of these cells with claims which have not been substantiated in operation. Since the matter is of some urgency, I will take it as a great favour if you will kindly make proper enquiries and send me a cable followed up by air mail confirmation.

I enclose herewith confirmation of a cable sent to you to-day.

I take it that you would have started your preliminary enquiries by the time this reaches you and be in a position to cable your reply.

One more point, I have kept the Development Secretary informed that I have sent this enquiry to you. The Government of Mysore will be granting special concessions for electric power etc., to help this new chemical industry in our State.

With best regards,

p.t.o.

With best regards,

I remain,
Yours sincerely,

(S.G. SASTRY.)

Capt. S.T. Binstead,
Trade Commissioner for Mysore,
532, Grand Buildings, Trafalgar Square,
London W.C.2

9 & C. 301-44-16 6842

OFFICE OF THE DIRECTOR
ENGG. & CHEMICAL INDUSTRIES
BANGALORE

9 & C

17 MAY 1946

17th May, 1946.

No. 2992

The Secretary to Government,
Development Department,
Public Offices, Bangalore.

Sir,

Electrolytic Alkali
Scheme.

1198/215

I have the honour to enclose herewith for kind information of Government a copy of letter dated 5th May 1946 received from Mr.S.G.Sastry in regard to the progress of the above scheme.

I have etc.,

Director,
Engg.&.Chem.Industries

17.5.

P.T.O.

Copy of letter dated 5th May 1946 from Mr. S.G.Sastry, Retired Director of Industries and Commerce and Director of Sandal Oil Factory.

Just to keep you informed of the progress of our Electrolytic alkali scheme. I would like to inform you that the Associated Mysore Industries Ltd., the Managing Agents, have received the permission of the Government of India for the capital issue in British India also. Further steps are being taken to register the company as early as possible and publish the prospectus.

Director,
E. and C. I.

S. G. SASTRY, B.A., M.Sc., (LOND.)
Director of Industries and Commerce
and
Director of Sandal Oil Factory
(MYSORE STATE SERVICE - RETIRED)

Sir Krishna Rao Road
Basavangudi
BANGALORE CITY

4864 Secy/4

5. 4. 1947.

Charles E. Noronha, Esq., M.A.,
Secretary to Government,
Development Department,
BANGALORE.

Dear Sir,

Ref: Your letter No.D.5749 dated 15th March 1947.
Sub: Electrolytic alkali.

I was out of Bangalore for nearly a month in connection with some meetings of the Government of India Committees and also to attend the Inter-Asian Relations Conference at New Delhi. I saw your letter only yesterday. I regret the unavoidable delay in replying your letter.

The Associated Mysore Industries Ltd. are going to definitely register the new joint stock company before the 18th of this month under the name "THE MYSORE ALKALI AND CHEMICALS LTD."

I am leaving this tonight for Bombay to meet one Mr. Bernard C. Meyers, representative of the Russell Engineering Co., Boston, U.S.A., and the meeting will take place on the 8th. This firm has quoted for a complete electrolytic alkali plant through Col.Felton of the Mysore Company. I am discussing with Mr. Meyers outstanding technical details in the light of recent advances in U.S.A. during wartime.

It will be seen therefore that the scheme is being actively pursued. I like to take this opportunity to tender our thanks to the Government of Mysore for their encouragement to start

Dear Sir,

Electrolytic Alkali Scheme

I am directed to refer to your letter dated 5th April 49 on the above subject and request you kindly to let me ~~have know~~ ~~your Communication on that~~ know the matter, ~~if any~~ stands at present.

Yours faithfully

for Secy to Govt.
Development Deptt

1242

[Sl. No. 26]

GOVERNMENT OF HIS HIGHNESS
THE MAHARAJA OF MYSORE.

General and Revenue Secretariat.

Requisition for papers.

Section 9K

A

B

Filed

Deposit No.

File No. 301/44

Serial No. 1—10

To be put up with Diary No. 1154 of 1947.

Signature

Branch 9K

Section

Date 29/1/48

WD 0880—GPB—1,000 books of 100 leaves each—20-3-42

App. F. XI 4]

File No. I&C 301-44 Serial No. ..... Sus. Regr. No. .....

Shall a reminder issue to..... for a reply to this Office No. , dated

Subject: Manufacture of Electrolytic alkali.

WD 0125—GPB—10,000—6-8-4

Orders	Reminder No.	Date	Remarks

WESTVACO CHLORINE PRODUCTS CORPORATION

April 26, 1945

The Mysore Chemicals and Fertilizers, Ltd.
Mysore State, India

Attention: Dr. K. L. Ramaswami
Hotel Edison, New York

Reference: Caustic Soda-Chlorine Plant - Our V-2445
(Vorce Cells)

Gentlemen:

A general study of the requirements of the caustic soda-chlorine plant projected by you for the Mysore State and outlined during your visit with us on March 21st has been completed. Preliminary quotations for Vorce Cells and Vorce Cell maintenance parts required for the production specified are submitted herein for your consideration.

As a basis for these quotations, we have interpreted the daily (24 hour) production as 6 long tons, or 13,440 lbs., of chlorine gas and approximately 15,200 lbs. of caustic soda.

The Vorce Cell that we have to offer for the electrolytic production of caustic soda and chlorine is designed to operate at a continuous load of 1,000 amperes. At this load and at a very conservative average current efficiency of 92%, the production per cell per 24 hours is 64.4 lbs. of chlorine in the form of a water vapor saturated gas and 72.7 lbs. of caustic soda in the form of a 9 to 10% NaOH - 16% NaCl solution.

Based on this unit cell output, continuous (24 hour) operationof 209 Standard Vorce Cells will be required for the production of 6 long tons of chlorine and 15,200 lbs. of caustic soda. To permit maintaining this production during intervals when individual cells must be repaired and to arrange the cells in electrical circuits, each consisting of two parallel rows of cells with each row containing the same number of cells, we would recommend the addition of at least 7 cells to the number required for continuous operation. The minimum cell installation we therefore recommend for this production would comprise:

216 Standard Vorce Cells

To provide flexibility that is usually desired because of fluctuating markets, we would recommend arranging the 216 cells in three circuits of 72 cells each.

The Vorce Cells are customarily furnished with all details completely fabricated for field assembly and are packed and shipped with these details "knocked down" to prevent damage during shipment and to conserve shipping space. To further reduce ocean transportation costs, we omit from the cell details the asbestos-concrete composition rings and we ship the steel for the cell tanks flat but cut to size and shape, ready for forming (the tank shells) and welding in the field. Fabrication of the cell tanks from the steel furnished and the casting of the asbestos-concrete rings will be executed locally by you at your expense. Metal moulds and asbestos fibre necessary for casting the cell rings and sample rings and an assembled steel tank will, however, be included with the Vorce cell parts for your use and guidance in this work.

If an allocation for copper and steel, an AA-1 preference rating for other Vorce Cell details and the necessary export license could be furnished with your order, we could quote standard Vorce Cells for the requirements of this project as follows:

216 Standard Vorce Cells
as described above, that is to say, with asbestos-concrete rings omitted; but with tank steel, ring moulds, asbestos fibre, and sample rings and an assembled steel tank included; with all details packed for export F.O.B. South Charleston, West Virginia or shipping point and with freight allowed and prepaid to New York..... U. S. $47,900.00 net

Gross Weight - Approximately..... 195,000 lbs.
Shipping tons, weight or measurement - approx. 112

With the Vorce Cell details and included in the above price, we would also furnish Vorce Cell assembly tools, ring molds, assembly and erection plans and instructions for the cells, Vorce Cell operating and Chemical Control Data, and general arrangement plans for the cells, the Cell Department foundations and for the brine, caustic soda, chlorine and hydrogen piping in the Cell Department.

In view of the fact that normally Vorce Cell diaphragms must be renewed approximately every three to four months, material for the maintenance of the diaphragms and for other miscellaneous parts of the cells must be available from the time the cells are initially operated. We recommend, therefore, coincident with the purchase of the cells, the purchase of maintenance material for the first year's normal operation and of certain cell details that must be carried in stock at all times. This material and parts we could supply as follows:

Maintenance Material and Parts for 216 Standard Vorce Cells when ordered packed and shipped with the Vorce Cells priced above, with goods F.O.B. South Charleston, West Virginia or shipping point and with freight allowed and prepaid to New York....U.S. $5,025.00

Weights of materials and parts are included in those estimated above for the cells.

The foregoing prices for Standard Vorce Cells and maintenance material are valid for a period of 30 days. On request, we will be glad to submit a more detailed listing of the items that would be furnished and specifying terms and payment, etc.

We are pleased to have this opportunity of quoting Vorce Cells for a proposed plant, and we trust we may have the pleasure of assisting you in the development of it by furnishing the equipment offered.

Very truly yours,

WESTVACO CHLORINE PRODUCTS CORPORATION

D. B. Ayerst

Appendix F. G.—1]

SUBJECT Electrolytic alkali plant — estimate furnished by M/s. Tellar.

Section 9h

File No.

Serial No.

Diary No. of letter replied to.....

No. D 6329

To

General and Revenue Secretariat

( )

the *194* .

(Dear Sir Sahib)

with reference to your D.O. letter Dated the 5th March 1945, on the above subject, I am directed to say/state that the original Copy of the estimate with the sketch and form the Tel has been sent to the Commr. D & P for taking necessary action.

Date of issue.... 21/3

Signed by.....

I am therefore to request that you may approach him & obtain copies of the same, if

List of enclosures.....

Copied by.....

Examined by.....

necessary.

(Yours obdt)

16/3/43 Ce. 17/3 (Dewey)

S. G. Sastri, Esq. B.A. M.Sc.

Retired Director of

9 K.

Basavangudi

Blore.

Memo D. 6330

Copy W/c to the Commr. D 29/3

for favour of his

9 & 9/42

W/c file sent to him separately

for favour of further action

16/3/43

Dewey.

16/3

A very preliminary estimate of the cost of the major process equipment, additional to the Vorce Cells, and of the piping for the various process departments that would be involved in this project, has been estimated as follows:-

MAJOR PROCESS EQUIPMENT AND PIPING

I. Cell Department - exclusive of Vorce Cells.

II. Brine Department - for preparing the NaCl brine solution to be used for the cell anolyte.

III. Evaporator Department - for concentrating the caustic soda produced by the cells to a 50% NaOH solution.

IV. Caustic Fusing Department - for producing solid caustic from the 50% NaOH solution.

V. Chlorine Drying Department - for dehydrating the chlorine gas.

VI. Liquid Chlorine Department - for producing liquid chlorine

VII. Bleach Department - for producing bleaching powder containing 30 to 35% available chlorine.

VIII. Hydrochloric Acid Department - for producing 20 to 22° Be. Acid from hydrogen and chlorine.

X. Drum Department - for fabricating steel drums for bleach and caustic soda from mill sheets.

ESTIMATED COST OF MAJOR PROCESS EQUIPMENT AND PIPING
with goods packed for export, F.O.B. Atlantic port, approx...$242,000.00

In the above estimate, the following items have been omitted:

Refractories for the caustic pot furnaces.
Steel for stacks, flues, covers, etc. for the caustic pots and furnaces.
Steel for process tanks and miscellaneous structural work that would be required.

Since they are special both in design and quality, tanks for the storage of liquid chlorine and hydrochloric acid have, however, been included in the above cost. No containers for the shipment of liquid chlorine have been estimated, however, as the quantity required will be governed by your market for this product. For your information on this subject, unit prices F.O.B. Atlantic port are approximately as follows:

Containers - 2,000 lb. capacity - each with valves....	$205.00
Cylinders - 150 lb. capacity - each with valve.....	20.50
Cylinders - 60 lb. capacity - each with valve.....	16.00

As inferred by the titled, the foregoing estimated cost is for Major Process Equipment and Piping. No consideration has been given to the cost of electrical conversion equipment for the power for electrolysis, motors and lighting; for power and lighting wiring; for steam generation equipment; nor for other plant utilities, shops, laboratory, etc.

Because we are primarily chemical manufacturers, we are not in a position to supply equipment for the process department of electrolytic caustic soda-chlorine plants other than the Standard Vorce Cells. We can, however, supply Vorce Cell customers with Process Engineering Services for the process departments of these plants. In the present instance, these services would comprise for the Process Department, I, II, III, IV, V, VI, VII, VIII and X (Drum Department);-

(a) General plans for the buildings to house these process departments. These plans will not be detailed and will show only inside dimensions, truss clearance, suggested locations for doors and windows, and loads on equipment foundations and crane columns.

(B) Erection plans for the process equipment and piping based on equipment manufactured in the United States of America and conforming to the design and t pe we will recommend for the services required from these departments. All equipment and designs by us and incorporated in these erection plans will be based on our best knowledge of the requirements of the operations involved and of the adaptability of equipment for these operations.

(c) Bills of material for all process equipment and piping shown on the erection plans.

(d) Operating Instructions and Chemical Control Data based on our current practices and/or our best knowledge of the requirements of the processes involved.

(e) Drafts of orders for the equipment incorporated in our designs for use by you in procuring equipment for the process departments from the various manufacturers.

Note: Although these services would not include designs, etc. for water and sewage systems, for steam generation and power conversion, for lighting and power distribution, nor for storerooms, shops, warehouses, etc., we would be glad to consult with your engineers at your expense on these phases of the project.

The cost of these Process Engineering Services, with all drawings furnished in quintuplicate, including 3 prints on blueprint paper, 1 print on cloth blueprint and 1 small photostat of each drawing, and with all other documents furnished in triplicate, has been estimated at.....$45,000.00

We wish to point out that in the above only the process equipment and piping costs have been considered and that to these must be added the cost of transportation to plant site, the cost of foundations, process and other buildings and the plant services and all erection costs, in order to arrive at the estimated capital requirements for this proposed plant.

We trust we have given you the information desired for your preliminary studies for this project. If it develops that additional information is required, we shall be pleased to consider how we can serve you and advise you accordingly.

Very truly yours,

WESTVACO CHLORINE PRODUCTS CORPORATION

D. B. Ayerst

I have had many conversations with various manufacturers and engineers relative to the manufacture of electric motors, generators and other electrical equipment.

I have another conference scheduled for next week in New York City with the International General Electric Company on the same subject.

I am assembling much information on this project and as soon as I receive a reply to my request for more information I will be in a position to do some valuable work for you. Before we can furnish any intelligent estimates of the cost of setting up this industry, as usual we must have determined by you whether you are to set it up in a small way or to enter into mass production. In my letter of October 23rd I asked several pertinent questions which, when answered, will permit me to proceed quickly.

In the meanwhile several interesting development have come to light relative to the electrical industry which I will pass on to you at a later date.

The problem of manufacturing cine and photo film seems to be about the most difficult of all the projects on which we are working. We have had investigations under way for some time but have not made too much progress.

Film is made by only four companies in this Country. I have been in contact with three of these companies who are definitely not interested in giving any assistance.

The manufacture of the sheet and strip film is comparatively easy but the manufacture and application of the emulsion is much more difficult to work out.

It is one of the few industries in this Country in which the formulae are secret but, more important, the technical know-how seems to be in possession of only a very limited number of people.

The manipulation of temperature control and methods of application to the cellulose strip are closely held secrets. The best method would be to employ the services of one of these operators on a contract basis over a period of years and to secure a qualified technical man with sufficient knowledge would probably mean paying him from ten to fifteen thousand dollars a year.

Anything can be accomplished if we make up our mind to do it and I am sure this matter could be worked out satisfactorily even though it might take some time to accomplish. At present it would be most difficult to secure the services of one of these men as they are all bound to their jobs by government regulations and restrictions on account of their

devoting their time almost 100% to war work. Understand I am not discouraged about the possibility of making these products in India but I wish to point out the difficulties and possible delay involved.

As soon as you have investigated your market thoroughly and determined exactly the types of films and photo papers you desire so that we can get an idea of the volume you wish to make by types we will assemble estimates for you.

I am entering into conversation within the next few days with the fourth manufacturer to see if they would be interested in lending assistance and technical knowledge for our purposes.

If I do not succeed in interesting any of our four manufacturers I will then proceed to build it from the bottom up via the route of research and chemical engineers.

As I wrote you previously we are awaiting further information on the plywood and veneer project before proceeding further. Within two weeks of the time I receive this information we can prepare the estimates for your decisions.

Two weeks ago while in New York I talked with Mr. Aurell Director in charge of Oriental Operations of the Singer Sewing Machine Company. I am awaiting their decisions now. He was just about to leave for India and China for the purpose of organizing for post war trade.

I am interviewing the executives of two other sewing machine companies very shortly and within a few weeks will have enough information to write about the prospects.

There are many other items too numerous to mention on which we are working for the benefit of Mysore state. These will all develop and come through to you in due time.

On December 18th we sent a cablegram, copy of which is enclosed, to the Development Secretary.

I was very impatient at my delay in securing the complete figures for the alkali plant but all of our qualified engineers are so busy it is most difficult to convince them to defer projects which they already have on hand in favor of preparing estimates for something which may be in the future. You can well understand this problem I am sure. By applying constant pressure I am finally able to secure the results.

I thought perhaps you might become as impatient as I regarding these estimates so I sent the cablegram to keep you informed.

Dy.9-03-17

G. SASTRY, B.A., M.Sc., (LOND.)
DIRECTOR OF INDUSTRIES AND COMMERCE
AND
DIRECTOR OF SANDAL OIL FACTORY,
(MYSORE STATE SERVICE—RETIRED.)

3464

SIR KRISHNA RAO ROAD,
BASAVANGUDI,
BANGALORE CITY

SECRETARIAT
1. JUL 1945

1st June 1945.

Dear Mr. Noronha,

Subject: Electrolytic alkali industry

Mushir-ul-mulk J. Mohamed Imam, Minister for Public Works and Industries invited Mr.S.A. Srinivasan and myself to meet him in his chambers on Monday the 21st May at 4-30 P.M. to have a discussion about the concessions which we have requested the Government to grant to us to enable us to start the electrolytic alkali industryin the State. Messrs. B. Viswanath and M.L.Narasimiengar were also present on the occasion. During the course of our representation we submitted to the Minister that we have to send cable instructions to Mr. R.D. Char, one of our Directors who is now in America and therefore, the Government might be pleased to issue their orders immediately. The Minister said in reply that our request would be kept in view and the orders would issue as early as possible.

It is necessary to take advantage of Mr. R.D. Char in America and since we do not wish to prolong his stay unnecessarily, we shall be obliged if Government orders can be issued immediately to help us to proceed with further action to float the joint stock company. I shall be greatly obliged if you can kindly help me in this matter.

Yours sincerely,

G. Sastry

Charles E. Noronha, Esq., M.A.,
Secretary to Government,
Development Department,
Bangalore.

G. SASTRY, B.A., M.Sc., (LOND.)
DIRECTOR OF INDUSTRIES AND COMMERCE
AND
DIRECTOR OF SANDAL OIL FACTORY,
(MYSORE STATE SERVICE—RETIRED.)

SIR KRISHNA RAO ROAD,
BASAVANGUDI,
BANGALORE CITY

7749

OFFICE OF THE MINISTER
FOR PUBLIC WORKS
13 JUNE 1945
No. 1751

June, 11, 45.

Dear Mr. Imam,

Just a line to confirm the request I made to you yesterday personally that you may be pleased to expedite the issue of the Government Order regarding concessions to be given for starting the electrolytic alkali industry in the State of Mysore.

Thanking you in anticipation,

I remain,
Yours sincerely,

S Sastry

Mushir-ul-mulk J. Mohamed Imam, B.A.,B.E.,
Minister for Public Works & Industries,
Government of Mysore,
Bangalore.

5644

GRAMS: PAPERMILL
PHONE NO. 2156

MILLS: BHADRAVATI
(MYSORE STATE RY.)

THE MYSORE PAPER MILLS, LTD.

CODES USED:
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TRADE MARK
BISON BRAND

ASIATIC BUILDINGS,
KEMPEGOWDA ROAD.

Ref. No. 95 9707

BANGALORE CITY 22nd Mar. 45

T. M. L. Narasimiengar, B.A., B.E.,
CHAIRMAN.

Dear Mr. Shamanna,

With reference to your D.O. no. D.6256/ I & C of the 26th March 45 on the subject of grant of a portion of land belonging to the Mysore Paper Mills, Ltd., to the company proposed to be formed for the manufacture of Electrolytic Alkali, Chlorine etc., in exchange for an equal extent of continguous land elsewhere, I write to state that this question is under the ~~xxxx~~ active consideration of the Board of Directors of the Mysore Paper Mills, Ltd. A decision will be arrived at thereon at the next Meeting of the Board which is proposed to be held shortly and will be duly communicated without delay.

Yours sincerely,

T. Shamanna, Esq., B.A.,
Asst. Secretary,
Development Department,
Public Offices, Bangalore.

Copy forwarded to the Commissioner, Development Planning in Mysore, Bangalore.

Charge to the account of _____ $_____

CLASS OF SERVICE DESIRED			
DOMESTIC		CABLE	
TELEGRAM		ORDINARY	
DAY LETTER		URGENT RATE	
SERIAL		DEFERRED	
NIGHT LETTER		NIGHT LETTER	

Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

1206

A. N. WILLIAMS
PRESIDENT

CHECK
ACCOUNTING INFORMATION
TIME FILED

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

FOR VICTORY
BUY
WAR BONDS
TODAY

Dec. 18, 1944

C. E. NORONHA SECRETARY DEVELOPMENT DEPARTMENT
STATE OF MYSORE BANGALORE INDIA

QUALIFIED ENGINEERS ASSEMBLING COMPLETE INFORMATION REQUESTED ELECTROLYTIC ALKALI PLANT AIR MAILING APPROXIMATELY JANUARY TWENTIETH STOP WORKING ON ALL OTHER PROJECTS YOU LISTED STOP EXPEDITE INFORMATION WE REQUESTED ON RAYON, VENEER, ELECTRICAL MOTORS AND EQUIPMENT STOP NO REMUNERATION DRAFT YET RECEIVED

MYSORE CO.
FELTON

ALL MESSAGES TAKEN BY THIS COMPANY ARE SUBJECT TO THE FOLLOWING TERMS:

[illegible]

10-42

CLASSES OF SERVICE

DOMESTIC SERVICES

TELEGRAMS

A full-rate expedited service.

DAY LETTERS

A deferred service at lower than the standard telegram rates.

SERIALS

Messages sent in sections during the same day.

NIGHT LETTERS

Accepted up to 2 A. M. for delivery not earlier than the following morning at rates substantially lower than the standard telegram or day letter rates.

CABLE SERVICES

ORDINARIES

The standard service, at full rates, Code messages, consisting of 5-letter groups only, at a lower rate.

DEFERREDS

Plain-language messages, subject to being deferred in favor of full-rate messages.

NIGHT LETTERS

Overnight plain-language messages.

URGENTS

Messages taking precedence over all other messages except government [illegible]

FEB 20 1945

T No. 1136 Enc 2.

Extract of letter dated 28th December 1944, from Mr.G.E.Felton, The Mysore Company, 75, Federal Street, Boston, Massachusetts, to Mr.M.A.Sreenivasan, Minister for Food and Civil Supplies, Bangalore.

Our complete estimates for the alkali and hydrochloric plant will be ready for mailing about the 20th of January.

In the next few days I am mailing to you a report, charts and a letter about synthetics. This will require some decisions and necessary action to permit us to proceed on the final scheme.

We are still awaiting information requested on rayon so that we may proceed to give you a full report of the processes and estimated cost of manufacturing rayon in Mysore.

(Continued)